WEST VIRGINIA
SECRETARY OF STATE
NATALIE E. TENNANT
ADMINISTRATIVE LAW DIVISION

Form #2

Do Not Mark in this Box

FILED

2009 JUN 11 PM 1:13

OFFICE WEST VIRGINIA
SECRETARY OF STATE

NOTICE OF A COMMENT PERIOD ON A PROPOSED RULE

AGENCY: West Virginia Board of Education TITLE NUMBER: 126

RULE TYPE: Legislative ; CITE AUTHORITY: W. Va. Constitution, Article XII, §2, W.Va. Code §18-2-5 and §18-9A-22

AMENDMENT TO AN EXISTING RULE: YES X NO ____

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 44C

TITLE OF RULE BEING AMENDED: 21st Century Science K-8 Content Standards and Objectives for West Virginia Schools (2520.3)

IF NO, SERIES NUMBER OF NEW RULE BEING PROPOSED: _____

TITLE OF RULE BEING PROPOSED: _____

IN LIEU OF A PUBLIC HEARING, A COMMENT PERIOD HAS BEEN ESTABLISHED DURING WHICH ANY INTERESTED PERSON MAY SEND COMMENTS CONCERNING THESE PROPOSED RULES. THIS COMMENT PERIOD WILL END ON July 13, 2009 AT 4:00 p.m. . ONLY WRITTEN COMMENTS WILL BE ACCEPTED AND ARE TO BE MAILED TO THE FOLLOWING ADDRESS:

Robin Anglin
Office of Instruction
West Virginia Department of Education
Capitol Building 6, Room 608
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0330

Comments to be considered are **limited to the PERFORMANCE DESCRIPTORS** of this proposed rule.

Steven L. Paine
State Superintendent of Schools

ATTACH A **BRIEF** SUMMARY OF YOUR PROPOSAL

EXECUTIVE SUMMARY
WEST VIRGINIA DEPARTMENT OF EDUCATION

Policy Number and Title: Policy 2520.3 - 21st Century Science K-8 Content Standards and Objectives for West Virginia

Background: The West Virginia Content Standards and Objectives have performance descriptors for each Standard that describe in narrative format how students demonstrate achievement of the standards. West Virginia has designated five performance levels: distinguished, above mastery, mastery, partial mastery and novice which serve two functions. Instructionally, they give teachers detailed information about the levels of knowledge and skills students may demonstrate in a content area. Performance levels and descriptors are also used to categorize and explain student performance on statewide assessment. The existing performance descriptors need revision and reformatting to make them more succinct and usable for teachers, parents and students. The individuals involved with the changes of this policy are: Carla Williamson, Executive Director of the Office of Instruction; Marty Burke, Assistant Director of the Office of Instruction; Robin Anglin, Science Coordinator in the Office of Instruction; Timothy Butcher, Coordinator in the Office of Assessment/Accountability; Janet Bowling, Teacher from Fayette County; Diane Bowers, Teacher from Ohio County; Anne Smith, Teacher from Pocahontas County; Belen Hutson, Teacher from Harrison County; Rosalie Rhodes, Science Coordinator for Kanawha County Schools; Kathy Jacquez, Teacher from Harrison County; Claudia Kol, Teacher from Kanawha County, and Jane Kennedy, Teacher from Kanawha County.

Proposals: Revisions to Policy 2520.3 are being recommended for:

- Revision of the performance descriptors to provide a narrative format that succinctly indicates levels of achievement and more accurately describes the conceptual understandings students should acquire at each grade level.
- Separation of the text to indicate clusters of concepts and the skills across the continuum.

Impact: The proposed revision of the Content Standards and Objectives for 21st Century Science K-8 Standards and Objectives Performance Descriptors will provide teachers information about the levels of knowledge and skills the students must acquire and will provide parents an explanation of their child's knowledge and conceptual understanding that should be acquired at each grade level.

Response to Comments:

TITLE 126
LEGISLATIVE RULE
BOARD OF EDUCATION

SERIES 44C
21st CENTURY SCIENCE K-8 CONTENT STANDARDS AND OBJECTIVES FOR WEST VIRGINIA SCHOOLS (2520.3)

§126-44C-1. General.

1.1. Scope. -- West Virginia Board of Education Policy 2510 provides a definition of a delivery system for, and an assessment and accountability system for, a thorough and efficient education for West Virginia public school students. Policy 2520.3 defines the content standards (or instructional goals) and objectives for the science as required by W.Va. 126CSR42 (Policy 2510).

1.2. Authority. -- W. Va. Constitution, Article XII, §2, W. Va. Code §18-2-5 and §18-9A-22.

1.3. Filing Date. -- ~~November 15, 2006.~~

1.4. Effective Date. -- ~~July 1, 2008~~.

1.5. Repeal of former rule. -- This legislative rule ~~repeals and replaces~~amends W. Va. 126CSR44C West Virginia Board of Education Policy 2520.3 "21st Century Science K-8 Content Standards and Objectives for West Virginia Schools (2520.3)" filed ~~February 25, 2003~~ November 15, 2006 and effective ~~July 1, 2003~~ July 1, 2008.

§126-44C-2. Purpose.

2.1. This policy defines the content standards (or instructional goals) and objectives for the program of study required by Policy 2510 in science K-8.

§126-44C-3. Incorporation by Reference.

3.1. A copy of 21st Century Science K-8 Content Standards and Objectives for West Virginia Schools is attached and incorporated by reference into this policy. Copies may be obtained in the Office of the Secretary of State and in the West Virginia Department of Education, Office of Instruction.

§126-44C-4. Summary of the Content Standards and Objectives.

4.1. The West Virginia Board of Education has the responsibility for establishing high quality standards pertaining to all educational standards (W. Va. Code §18-9A-22). The content standards and objectives provide a focus for teachers to teach and students to learn those skills and competencies essential for future success in the workplace and further education. The document includes content standards for science, an explanation of terms, objectives that reflect a rigorous and challenging curriculum, and performance descriptors.

West Virginia Department of Education

West Virginia Board of Education Policy 2520.3
21st Century Science K-8 Content Standards and Objectives for West Virginia Schools

Steven L. Paine
State Superintendent

Foreword

A 21st century science curriculum is an increasingly important component in the development learners prepared for success in the 21st century. Thus, the West Virginia Board of Education and the West Virginia Department of Education are pleased to present Policy 2520.3, 21st Century Science K-8 Content Standards and Objectives for West Virginia Schools. The West Virginia Science Standards for 21st Century Learning includes 21st century *content* standards and objectives as well as 21st century standards and objectives for *learning skills* and *technology tools*. This broadened scope of science curriculum is built on the firm belief that quality engaging instruction must be built on a curriculum that triangulates rigorous 21st century content, 21st century learning skills and the use of 21st century technology tools.

Committees of educators from across the state convened to revise the content standards and objectives. The overarching goal was to build a rigorous, relevant and challenging science curriculum that would prepare students for the 21st century. West Virginia educators, including regular classroom teachers, special education teachers, and teachers representing higher education institutions played a key role in shaping the content standards to align with national standards, rigorous national assessments, and research and best practice in the field of science education. The contribution of these professionals was critical in creating a policy that is meaningful to classroom teachers and appears in a format that can easily be used and understood.

Policy 2520.3 is organized around the three major components of a standards-based curriculum: learning standards, instructional objectives and performance descriptors. The learning standards are the *broad descriptions* of what *all* students must know and be able to do at the conclusion of the instructional sequence. The accompanying grade-level objectives are specific descriptors of knowledge, skills and attitudes that when mastered will enable the student to attain the standard. The instructional objectives guide instructional *planning* and provide a basis for determining appropriate *assessments, instructional strategies and resources.* The performance descriptors provide the basis for *assessing* overall student competence of grade level standards. The performance descriptors define the five student performance levels ranging from novice to distinguished. With the ultimate goal of "learning for all," these descriptors allow the teacher, students and parents to judge the *level* of student proficiency in each 21st century learning standard.

In combination, the use of learning standards, instructional objectives and performance descriptors become a comprehensive guide for delivering a rigorous and relevant science curriculum to all West Virginia students. These elements, when used to guide the instructional process and when delivered with the creativity and instructional expertise of West Virginia teachers, will become a powerful resource for preparing students to meet the challenges of the 21st century.

Steven L. Paine
State Superintendent of Schools

Explanation of Terms

Content Standards are broad descriptions of what students should know and be able to do in a content area. Content standards describe what students' knowledge and skills should be at the end of a K-12 sequence of study.

Objectives are incremental steps toward accomplishment of content standards. Objectives are listed by grade level and are organized around the content standards. Objectives build across grade levels as students advance in their knowledge and skills.

Performance Descriptors describe in narrative format how students demonstrate achievement of the content standards. **Line breaks within the narrative format indicate clusters of concepts and skills.** West Virginia has designed five performance levels: distinguished, above mastery, mastery, partial mastery and novice. Performance Descriptors serve two functions. Instructionally, they give teachers more information about the level of knowledge and skills students need to acquire. Performance levels and descriptors are also used to categorize and explain student performance on statewide assessment instruments.

Distinguished: A student at this level has demonstrated exemplary performance. The work shows a distinctive and sophisticated application of knowledge and skills in real world situations that go beyond course or grade level applications.

Above Mastery: A student at this level has demonstrated effective performance and exceeds the standard. The work shows a thorough and effective application of knowledge and skills in real world situations within the subject matter and grade level..

Mastery: A student at this level has demonstrated competency over challenging subject matter, including knowledge and skills that are appropriate to the subject matter and grade level. The work is accurate, complete and addresses real world applications. The work shows solid academic performance at the course or grade level.

Partial Mastery: A student at this level has demonstrated limited knowledge and skills toward meeting the standard. The work shows basic but inconsistent application of knowledge and skills characterized by errors and/or omissions. Performance needs further development.

Novice: A student at this level has demonstrated minimal fundamental knowledge and skills needed to meet the standard. Performance at this level is fragmented and/or incomplete and needs considerable development.

Numbering of Standards

The number for each content standard is composed of four parts, each part separated by a period:

- the content area code is SC for Science,
- the letter S, for Standard,

- the grade level and
- the standard number.

Illustration: SC.S.4.1 refers to fourth grade science content standard #1.

Numbering of Objectives

The number of each objective is composed of five parts, each part separated by a period:

- the content area code (SC for Science),
- the letter O is for Objective,
- the grade level,
- the number of the content standard addressed, and
- the objective number.

Illustration: SC.O.6.2.3 refers to a science sixth grade objective that addresses standard #2 in science, and that is the third objective listed under that standard.

Numbering of Performance Descriptors

The number for each group of three performance descriptors is composed of four parts, each part separated by a period:

- the content area (SC for Science),
- the letters PD are for Performance Descriptors,
- the grade level, and
- the standard number.

Illustration: SC.PD.6.2 refers to science performance descriptors for sixth grade, content standard 2.

Unique Electronic Numbers (UENs)

Unique Electronic Numbers (or UENs) are numbers that help to electronically identify, categorize and link specific bits of information. Once Policy 2520.3 is available on the Web, each standard, each objective, and each group of five performance descriptors will have a Unique Electronic Number (UEN) that will always remain the same.

The codes printed in Policy 2520.3 form the basis of the UENs. The only additional set of numbers that will be added to each code to formulate its UEN will be a prefix that indicates the year and month that a particular version of Policy 2520.3 is approved by the State Board of Education.

The prefix for the UENs for each content area in Policy 2520.3 is noted at the top of each page containing standards, objectives and performance descriptors. As sections of 2520.3 are revised, UENs will be changed to reflect the new approval date.

UENs (Unique Electronic Numbers) are unique numbers that facilitate implementation of WV Standards into Electronic formats such as Databases and XML Files. The WV Department of Education encourages everyone who is going to use the WV Content Standards in any kind of electronic distribution, alignment, or software development to use the UENs so that all efforts can be cross-referenced and there is consistency across initiatives.

Illustration: The UEN for ninth grade science standard #2 will be "200602.SC.S.9.2".

Abbreviations

Content Areas

SC	Science

Other Abbreviations

PD	Performance Descriptors
O	Objective
S	Standard (Content Standard)

SCIENCE – POLICY 2520.3

The K-8 science content standards identify what students should know, understand and be able to do in the natural sciences throughout the eighth grade. Because each content standard utilizes the knowledge and skills of other standards, they are designed to be used as an integrated whole. Although material can be added to the content standards, using only a subset of the standards will leave gaps in the students' scientific literacy.

A multitude of of references was considered to support the development of the Science curriculum including NAEP. ACT, SAT, 21st Century Learning, National Science Education Standards, Project 2061, National Science Teachers Standards, and nationally recognized research. Each reference was reviewed and its relevance was determined in order to produce a more challenging curriculum for West Virginia students.

A three-dimensional instructional strategy model must be utilized to address the science curriculum and assure students' depth of understanding and breadth of knowledge. That model uses the nature, content and application of science concepts to develop scientific inquiry and reasoning skills in students.

Standard 1: Nature of Science
The study of science as a human endeavor provides for the acquisition of ideas leading toward the current knowledge base that represents science content. The nature of science encompasses the basic values and beliefs that make up the scientific world view, how scientists go about their work and the general culture of scientific enterprise. Studying historical and current discoveries of scientists and scientific milestones provides students with information about how discoveries have influenced current scientific thought and advancements. Students should understand that the continuous development of scientific knowledge shapes history. The study of the history and nature of science clarifies scientific inquiry and the role of science in the development of world cultures. Students will engage in active inquiry through investigations and hands-on activities a minimum of 50% of the instructional time. Developing scientific literacy requires a learning environment in which students actively participate in meaningful hands-on activities while developing current technology skills. These investigations explore the natural world, require critical thinking and develop process skills. Learning activities are sequenced to shape, modify and develop students' knowledge in order for them to become independent inquirers.

Standard 2: Content of Science
Science subject matter focuses on the scientific facts, concepts, principles, theories and models that are important for all students to know, understand and apply. Through the integration of the fields of science and the development of unifying themes, students will understand the interrelationships among biology, chemistry, physics and the earth sciences. Scientifically literate students will make connections in the formal education setting and will apply their knowledge and skills to daily life experiences. The objectives describe the specific subject matter/concepts that students are to master at each grade level.

Standard 3: Application of Science
Broad unifying themes complement the perspectives presented in the other content standards. These themes are fundamental to understanding and unifying the various science disciplines. Major unifying themes are systems, models and changes. Scientific design and application permits the extension of senses, the enhancement of the knowledge base, transportation of materials and information, synthesizing of new products and

the modification of the world. Students must learn to use technology to analyze situations, gather relevant information, generate and evaluate creative ideas, pose tangible solutions and communicate their analyses, results and suggestions concisely. The need to adapt to the rapid changes that are likely to occur in the future makes it imperative that students develop a broad spectrum of technology-related skills and an openness to change. Applying science and technological innovations to personal and social issues such as health, populations, resources and environment helps students to develop decision-making skills. As students expand their conceptual horizons, they should recognize that collective individual actions manifest as societal issues. Students must recognize that society cannot afford to deal only with symptoms; personal and societal actions must be focused on elimination of the causes of problems. Students should recognize that unless imposed by legislation social change involves negotiation among different interest groups. Students must be allowed to encounter and examine social change in a variety of current and historical contexts.

The Role of Technology

West Virginia's vision for education includes the integration of technology throughout the curriculum so that all West Virginia students have the opportunity to develop technology skills that support learning and provide the ability to adapt to change. Successful learning environments provide opportunities for students to use education technology interwoven with relevant curricular content. West Virginia teachers are responsible for integrating technology appropriately in the students' learning environment.

Organization of the Science Program of Study

The West Virginia Science Program of Study is drawn from the National Science Education Standards and the Project 2061 Benchmarks to promote a rigorous and challenging science curriculum. Through experiencing a spiraling, inquiry-based program of study, students in grades K-10 will develop foundational knowledge and skills in the physical sciences, the life sciences, and the earth and space sciences. To assure scientific literacy for all students, a coordinated, integrated approach is utilized in grades K-8. Students in the 9^{th}, 10^{th}, 11^{th} and 12^{th} grades participate in advanced in-depth laboratory-based courses designed to expand their conceptual understanding and enhance their research and laboratory skills.

Kindergarten Science Content Standards and Objectives

The Kindergarten Science objectives emphasize the process skills. Through a spiraling, inquiry-based program of study, all students will demonstrate scientific literacy and the use of 21st century skills in the physical sciences, the life sciences and the earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Kindergarten Science enhances the child's natural curiosity about the environment and augments the awe and wonder of inquiries and discoveries using the senses and by hands-on manipulation of objects to build a strong foundation of concepts blended with safety principles. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Kindergarten	Science
Standard 1:	Nature of Science
SC.S.K.1	Students will • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. • demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.

Performance Descriptors SC.PD.K.1

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Kindergarten students at the distinguished level in the nature of science: prove answers and draw conclusions about themselves and their world, and safely use scientific instruments and collect data to explain unknown objects and	Kindergarten students at the above mastery level in the nature of science: seek information about themselves and their world, and safely use scientific instruments to collect data and compare and contrast objects events. ~~Kindergarten students at the~~	Kindergarten students at the mastery level in the nature of science: ask questions about themselves and their world, and safely explore and describe objects and events and collect information using their senses and scientific	Kindergarten students at the partial mastery level in the nature of science: ask questions about themselves and others, and describe objects and events using their senses and safely using scientific instruments.~~Kindergarten students at the partial~~	Kindergarten students at the novice level in the nature of science: ask questions about themselves, and identify objects and events using their senses and safely using scientific instruments. ~~Kindergarten students at the novice level~~

events.~~Kindergarten students at the distinguished level ask questions about themselves and their world and search for answers; use safety techniques; identify and describe unknown objects or events using their senses or scientific instruments.~~	~~above mastery level ask questions about themselves and others; use safety techniques; compare and contrast objects or events using their senses or scientific instruments.~~	instruments. ~~Kindergarten students at the mastery level ask questions about themselves and their world; use safety techniques; explore and describe objects and events using their senses and scientific instruments.~~	~~mastery level ask questions about themselves and their world; describe objects or events by using their senses or scientific instruments safely.~~	~~ask questions about themselves; identify objects or events using their senses or scientific instruments safely.~~

Objectives	Students will
SC.O.K.1.01	ask questions about themselves and their world.
SC.O.K.1.02	listen to and discuss stories about the lives and discoveries of scientists.
SC.O.K.1.03	demonstrate curiosity, initiative and creativity by asking questions about the environment noting patterns and variations of natural objects (e.g., trees, leaves, or animal structures).
SC.O.K.1.04	explore and describe objects and events using the five senses to develop observational skills and make predictions based on personal observation.
SC.O.K.1.05	use scientific instruments and everyday materials to investigate the natural world (e.g., hand lens, balance, or magnets).
SC.O.K.1.06	use safe and proper techniques for handling, manipulating and caring for science materials (e.g., follow safety rules, maintain a clean work area, or treat living organisms humanely).
SC.O.K.1.07	collect and record information in a variety of ways (e.g., drawings, weather calendar, or graphs).

Kindergarten	Kindergarten Science
Standard 2:	Content of Science
SC.S.K.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.~~K~~.PD.K.2				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Kindergarten students at the distinguished level in the content of science will: investigate, record	Kindergarten students at the above mastery level in the content of science will: investigate, record	Kindergarten students at the mastery level in the content of science will: investigate, describe, and	Kindergarten students at the partial mastery level in the content of science will: investigate and describe	Kindergarten students at the novice level in the content of science will: recognize when changes

information, and create models to describe the world around them; compare and contrast living and nonliving things, sort them based on their properties and characteristics, and explore and explain chances in energy, forces, and motion. ~~Kindergarten students at the distinguished level compare and contrast living and nonliving things; describe life cycles of living organisms and their rate of growth; develop a classification system to sort objects; recognize that water can change states; demonstrate properties of magnetism; compare force and motion of objects; record weather changes and the effect on living things; investigate properties of soil.~~	information, and use models to describe the world around them; identify and describe living and nonliving things, sort them based on their properties and characteristics, and explore and describe chances in energy, forces, and motion. ~~Kindergarten students at the above mastery level distinguish between living and nonliving things; compare life cycles of organisms; classify objects; describe solids, liquids and gases; classify objects as magnetic or nonmagnetic; describe changes in an object's motion and energy; compare weather over time; compare land and water features.~~	record changes in the world around them; identify, describe, and sort living and nonliving things, and explore and discuss changes in energy, forces, and motion. ~~Kindergarten students at the mastery level identify living and nonliving things; describe changes in plants and animals and their environment; sort and group objects; identify solids and liquids; explore magnetic properties, motion and changes in energy; identify celestial objects and changes in weather; compare differences in earth materials.~~	changes in the world around them; identify and describe living and nonliving things, and observe and describe changes in energy, forces, and motion. ~~Kindergarten students at the partial mastery level identify living and nonliving things; list changes in plants and animals; sort objects according to a scheme; name a solid and a liquid; recognize that some objects are magnetic; identify changes in motion and energy; observe daily changes in weather; identify earth materials.~~	have occurred in the world around them; identify and describe living and nonliving things, and recognize when changes have occurred in energy, forces, and motion. ~~Kindergarten students at the novice level name a living and nonliving thing; observe plants and animals in the environment; identify colors; name a solid or liquid; examine a magnet; differentiate between fast and slow; identify the sun and moon; observe earth materials.~~

Objectives	Students will
SC.O.K.2.01	using the five senses, identify living and non-living things.
SC.O.K.2.02	observe and describe the movement, growth and changes in plants and animals.
SC.O.K.2.03	observe and describe models of plants and animals in different environments (e.g., terrariums, aquariums, animals and plants in a forest, pond, or field).
SC.O.K.2.04	describe, compare, sort and group objects in terms of what they are made of (e.g., clay, cloth, paper, or metal) and their physical properties of size, shape, color, weight or texture.

SC.O.K.2.05	identify liquids and solids.
SC.O.K.2.06	identify colors.
SC.O.K.2.07	explore and describe changes in energy (e.g., hot/cold or light/dark).
SC.O.K.2.08	explore and discuss magnetic properties of objects.
SC.O.K.2.09	explore and state different ways objects can be moved (e.g., straight, circular, fast, or slow).
SC.O.K.2.10	observe and record daily changes in weather (e.g., clouds or air temperature).
SC.O.K.2.11	identify objects in the day and night sky (e.g., moon, stars, or sun).
SC.O.K.2.12	observe and compare differences in earth materials.

Kindergarten	**Kindergarten Science**
Standard 3:	Application of Science
SC.S.K.3	Students will • recognize models as representations of real things. • observe that changes occur gradually, repetitively, or randomly within the environment. • listen and be tolerant of different viewpoints while working in collaborative groups. • observe and identify the use of tools and appliances in everyday life.

Performance Descriptors SC.PD.K.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Kindergarten students at the distinguished level in the application of science will: choose an appropriate tool or appliance for an assigned task; observe, record, and explain how changes occur, and draw conclusions from different viewpoints of group members.~~Kindergarten students at the distinguished level when given a sample, construct a~~	Kindergarten students at the above mastery level in the application of science will: identify the use of tools, models, and appliances; observe, record, and describe how changes occur, and acknowledge and be tolerant of different viewpoints while working in a group. ~~Kindergarten students at the above mastery level recognize and~~	Kindergarten students at the mastery level in the application of science will: identify the use of tools, models, and appliances; observe and describe how changes occur, and be tolerant of different viewpoints while working in a group. ~~Kindergarten students at the mastery level recognize models as representations of real~~	Kindergarten students at the partial mastery level in the application of science will: identify the use of tools, models, and appliances; observe and describe how changes occur, and listen to different viewpoints while working in a group. ~~Kindergarten students at the partial mastery level recognize models as representations of real~~	Kindergarten students at the novice level in the application of science will: identify tools, models, and appliances at home and at play; recognize when changes have occurred, and take turns while working in a group.~~Kindergarten students at the novice level recognize models of real things; talk about changes that occur in the~~

~~model; describe changes that occur within the environment; be tolerant of different viewpoints while working in a group; choose an appropriate tool or appliance to accomplish a specified task.~~	~~use models as representations of real things; describe changes that occur within the environment; be tolerant of different viewpoints while working in a group; describe the use of a tool or appliance in everyday life.~~	~~things; observe and identify changes that occur within the environment; be tolerant of different viewpoints while working in a group; observe and identify the use of tools and appliances in everyday life.~~	~~things; name a change that occurs within the environment; be tolerant of different viewpoints while working in a group; identify tools or appliances in everyday life.~~	~~environment; be tolerant of different viewpoints while working in a group; name a tool or appliance.~~

Objectives	Students will
SC.O.K.3.01	recognize that models are representations of real things.
SC.O.K.3.02	observe and point out that change occurs gradually, repetitively, or randomly within the environment.
SC.O.K.3.03	observe and identify the uses of tools and appliances at home and at play.
SC.O.K.3.04	work in groups, listen to and be tolerant of different viewpoints.

First Grade Science Content Standards and Objectives

The First Grade Science objectives build on the process skills and add data gathering and reporting. Through a spiraling, inquiry-based program of study, all students will demonstrate scientific literacy and the use of 21st century skills in the fields of biology, chemistry, physics, and earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes, and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated in all activities. First Grade Science continues the excitement of learning about the natural world and allows the beginning of experimentation and data collection to emphasize the tools of science and the properties of matter. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 1	Science
Standard 1:	Nature of Science
SC.S.1.1	Students will • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. • demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.

Performance Descriptors SC.PD.1.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
First grade students at the distinguished level in the nature of science: relate lives and discoveries of scientists to the technology in their world and the activities they do in science class, and safely manipulate equipment to perform simple experiments as they	First grade students at the above mastery level in the nature of science: relate lives and discoveries of scientists to the activities they do in science class, and safely use tools and techniques as they gather, record, and organize	First grade students at the mastery level in the nature of science: discuss lives and discoveries of scientists, and safely use tools and techniques as they gather, record, and organize	First grade students at the partial mastery level in the nature of science: discuss lives and discoveries of scientists, and safely use tools and techniques as they gather and record information to	First grade students at the novice level in the nature of science: discuss lives and discoveries of scientists, and safely use tools and techniques as they gather and record information to

investigate the world around them. ~~First grade students at the distinguished level relate science discoveries to their world; use science content to explain environmental changes; use a variety of communication techniques to explain the reason for classifying.~~	information to answer questions and solve problems in the world around them. ~~First grade students at the above mastery level relate scientist's discoveries to their own lives; develop a hypothesis to explain environmental changes; use a variety of communication techniques to explain the reason for classifying; use oral communication to explain classification systems.~~	information to answer questions they have about the world around them. ~~First grade students at the mastery level discuss scientists' lives and discoveries; question environmental changes; compare information by using a classification system; use a variety of communication techniques to safely collect and record information.~~	answer questions about the world around them. ~~First grade students at the partial mastery level discuss scientists' lives; identify environmental changes; safely collect and record information.~~	answer questions about the world around them. ~~First grade students at the novice level listen to a story about a scientist; observe environmental changes; sort objects.~~

Objectives	Students will
SC.O.1.1.01	ask questions about themselves and their world.
SC.O.1.1.02	discuss the lives and discoveries of scientists after listening to stories about their lives and discoveries.
SC.O.1.1.03	demonstrate curiosity, initiative and creativity by questioning observations of changes in the environment (e.g., life cycles, motion of celestial objects, or sun and shadow).
SC.O.1.1.04	use scientific instruments and everyday materials to investigate the natural world (e.g., hand lens, balance, magnets, thermometer, seeds, or rocks).
SC.O.1.1.05	use safe and proper techniques for handling, manipulating and caring for science materials (e.g., follow safety rules, maintain a clean work area, or treat living organisms humanely).
SC.O.1.1.06	collect, record and compare information using a variety of classification systems (e.g., ordering, sorting, or sequencing) and using a variety of communication techniques (e.g., sketches, pictographs, or models).

Grade 1	**Science**
Standard 2:	Content of Science
SC.S.1.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.
Performance Descriptors SC.PD.1.2	

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
First grade students at the distinguished level in the content of science:	First grade students at the above mastery level in the content of science:	First grade students at the mastery level in the content of science:	First grade students at the partial mastery level in the content of science:	First grade students at the novice level in the content of science:
analyze living and non-living objects and construct diagrams to represent life cycles of various plants and animals;	sequence life cycles of living organisms and compare and contrast living and nonliving objects;	describe needs, growth changes and life cycles of organisms and classify objects as living or nonliving;	identify living and nonliving objects and list changes in life cycles;	list living and nonliving things and name basic needs of living things;
connect properties of magnetism;	demonstrate properties of magnetism;	classify objects as magnetic or nonmagnetic;	explore and discuss magnetic properties of matter;	recognize that some things are magnetic;
prove how water changes state and compare and contrast the buoyancy of materials;	compare changes in water to its effect on living things and predict the buoyancy of objects in water;	recognize that water can change states and investigate buoyancy;	name water in its three states;	identify liquids and solids;
plan a recycling project and describe possible outcomes due to polluted air;	identify materials that can be recycled and compare air pollutants;	recognize and sort objects that can be recycled;	recognize objects that can be recycled;	use the classroom recycling bin
connect factors that affect changes in an objects' motion;	compare the force and motion of objects;	describe changes in an object's motion;	identify changes in an object's motion;	move an object;
analyze pitch and volume of sound;	compare and contrast sounds;	demonstrate that sounds are produced by vibrations;	identify that sounds is produce by vibrations;	name an object that vibrates;
apply the concepts of weather changes and its effect on living things;	compare changes in the weather to its effect on living things;	record changes in weather and its effect on living things;	identify changes in weather;	observe weather changes;
connect changes in the earth and sky;	compare and explain the changes in the earth and sky ;	discuss the importance of celestial objects , their movement and the	identify the movement of the sun and the moon and list uses of air;	identify the sun, moon and stars and name an important use of air;

design diagrams to represent land and water features.~~First grade students at the distinguished level categorize living and nonliving objects; construct diagrams to represent life cycles of various plants and animals; investigate properties of magnetism; explain how water changes state; compare and contrast the buoyancy of materials; plan a recycling project; discuss factors that affect change in an objects motion; explore pitch and volume of sound; predict weather changes and its effect on living things; compare and contrast changes in the earth and sky; draw a diagram representing land and water features; describe possible outcomes due to polluted air.~~	differentiate land and water features on a diagram.~~First grade students at the above mastery compare and contrast living and nonliving objects; sequence life cycles of living organisms; demonstrate properties of magnetism; predict the buoyancy of objects in water; identify materials that can be recycled; compare the force and motion of objects; compare and contrast sounds; compare changes in the weather to its effect on living things; identify and explain the changes in earth and sky; identify land and water features on a diagram; list air pollutants.~~	important uses of air; using models, compare land and water features and investigate the properties of soil.~~First grade students at the mastery level classify objects as living and non-living; describe needs, growth changes and life cycles in living organisms; classify objects as magnetic or nonmagnetic; recognize that water can change states and investigate buoyancy of objects in water; recognize that materials can be recycled; describe changes in an object's motion; demonstrate that sounds are produced by vibrations; record changes in weather and its effect on living things; discuss the importance of celestial objects and their movement; using models, compare land and water features; investigate properties of soil; and discuss the important uses of air.~~	name parts in soil and identify land and water features. ~~First grade students at the partial mastery level identify living and nonliving objects; list changes in life cycles; explore and discuss magnetic properties of matter; name water in its three states; identify changes in an object's motion; identify that sound is produced by vibrations; identify changes in weather; identify the movement of the sun and moon; identify land and water features; name parts in soil; list uses of air.~~	identify land and water features and observe soil.~~First grade students at the novice level list living and nonliving objects; name basic needs of living things; recognize that some objects are magnetic; identify liquids and solids; name an object that vibrates; observe changes in weather; identify the sun, moon and stars; identify land and water features; observe soil; name an important use of air.~~

Objectives	Students will
SC.O.1.2.01	classify objects as living or non-living.
SC.O.1.2.02	identify that most living things need water, food, light and air.
SC.O.1.2.03	describe changes in life cycle of living organisms.
SC.O.1.2.04	identify the parts of growing plants as they develop.

SC.O.1.2.05	depict movement of living things in air, water and on land. (e.g., birds flying, fish swimming, or worms burrowing in soil).
SC.O.1.2.06	recognize that materials are composed of smaller parts that may be seen with a magnifier.
SC.O.1.2.07	recognize that materials can be recycled and used again, sometimes in different forms.
SC.O.1.2.08	recognize that water can change from one form to another and give examples of changes.
SC.O.1.2.09	predict and investigate the buoyancy of objects in water.
SC.O.1.2.10	classify objects as magnetic or non-magnetic.
SC.O.1.2.11	observe and record shadows at different times of the day.
SC.O.1.2.12	describe the changes in the motion of objects (e.g., slowing down, speeding up, or curving).
SC.O.1.2.13	demonstrate that sounds are produced by vibrations.
SC.O.1.2.14	observe, identify and record changes in weather and effects on living organisms.
SC.O.1.2.15	recognize that the sun, moon, and stars appear to move.
SC.O.1.2.16	observe and discuss the importance of objects in the day and night sky.
SC.O.1.2.17	use a model to compare land and water features on the Earth.
SC.O.1.2.18	identify important uses of air.
SC.O.1.2.19	investigate and compare the properties of soil (e.g., sand, clay, or humus).

Grade 1	**Science**
Standard 3:	Application of Science
S.C.S.1.3	Students will • identify how the parts of a system interact, • recognize and use models as representations of real things, • demonstrate the ability to distinguish between natural and man-made objects, • Listen and be tolerant of different viewpoints while working in collaborative groups, and • demonstrate the ability to evaluate the impact of different points of view on health, population, resources and environment practices.

Performance Descriptors SC.PD.1.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
First grade students at the distinguished level of the application of science will: prove how parts of a system interact; design a model of real things;	First grade students at the above mastery level of the application of science will: explain how parts of a system interact; construct a model as representations of real	First grade students at the mastery level of the application of science will: identify how parts of a system interact; recognize and use models as representations of real	First grade students at the partial mastery level of the application of science will: list parts of a system; recognize and use models;	First grade students at the novice level of the application of science will: name a system; identify models;

analyze natural and man-made objects; draw conclusions from different viewpoints of group members; engage and involve the community in conservation practices.~~First grade students at the distinguished level describe and identify how parts of a system interact; construct and describe a model; compare and contrast natural and man-made objects; demonstrate tolerance of different points of view; engage and involve the community in conservation practices.~~	things; classify man-made and natural items; compare and contrast different viewpoints while working in a group; compare conservation practices. ~~First grade students at the above mastery describe and identify how parts of a system interact; construct a model as representations of real things; classify man-made and natural items; demonstrate tolerance of different points of view; engage in conservation practices.~~	things; distinguish between natural and man-made objects; demonstrate tolerance of different points of view; engage in conservation practices. ~~First grade students at the mastery level identify how parts of a system interact; recognize and use models as representations of real things; distinguish between natural and man-made objects; demonstrate tolerance of different points of view; engage in conservation practices.~~	name a natural and a man-made object; work in collaborative groups; list conversation practices. ~~First grade students at the partial mastery level list parts of a system; recognize and use models; name a natural and a man-made object; work in collaborative groups; list conservation practices.~~	use a natural or man-made object; listen and take turns while working in a group; name a conservation practice. ~~First grade students at the novice level name a system; recognize models; name a natural or man-made object; name a conservation practice.~~

Objectives	Students will
SC.O.1.3.01	identify that systems are made of parts that interact with one another.
SC.O.1.3.02	use models as representations of real things.
SC.O.1.3.03	distinguish between natural and man-made objects.
SC.O.1.3.04	listen to and be tolerant of different viewpoints while working in collaborative groups.
SC.O.1.3.05	develop respect and responsibility for the environment by engaging in conservation practices (e.g., recycling, or trash clean-up).

Second Grade Science Content Standards and Objectives

The Second Grade Science objectives build upon the early stages of experimentation and maintenance of natural curiosity. Through a spiraling, inquiry-based program of study and the use of 21st century skills, all students will demonstrate scientific literacy in the fields of biology, chemistry, physics and earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated in all activities. Second Grade Science will provide opportunities for developmental and academic growth. The activities will introduce the concept that science and technology are interrelated. The curricular thrust will be to develop early problem-solving skills through observation, experimenting and concluding. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 2	Science
Standard 1:	Nature of Science
SC.S.2.1	Students will • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. • demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.

Performance Descriptors SC.PD.2.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at the distinguished level in the nature of science: conduct interviews with people in science related careers in their community; demonstrate curiosity by formulating questions about the world around them	Second grade students at the above mastery level in the nature of science: connect science careers with the needs of their community; safely use tools and techniques when designing simple experiments to	Second grade students at the mastery level in the nature of science: compare the lives and discoveries of scientists of different cultures and backgrounds; safely use tools and techniques when designing and conducting simple	Second grade students at the partial mastery level in the nature of science: identify and discuss scientists and science careers in their community; safely use tools and techniques when and conducting simple	Second grade students at the novice level in the nature of science: list science related careers; observe simple investigations and recall results;

designing simple experiments to answer those questions. ~~Second grade students at the distinguished level interview people in scientific careers; design and conduct investigations using safe techniques, draw conclusions and present their findings.~~	answer questions and solve problems in the world around them. ~~Second grade students at the above mastery level relate science careers to their role in the community; design and conduct simple investigations using safe techniques and draw conclusions from collected data.~~	investigations. ~~Second grade students at the mastery level identify and discuss science careers in their community; design and conduct simple investigations using safe techniques; describe trends of data and make predictions; use scientific tools.~~	investigations. ~~Second grade students at the partial mastery level discuss science careers; carry out a directed investigation using safe techniques; collect and record data; classify tools.~~	~~Second grade students at the novice level list careers in science; observe simple investigations and view data collected; identify scientific tools.~~

Objectives	Students will
SC.O.2.1.01	interpret science as the human's search for an understanding of the world by asking questions about themselves and their world.
SC.O.2.1.02	compare the lives and discoveries of scientists of different cultures and backgrounds.
SC.O.2.1.03	identify and discuss science careers in the community.
SC.O.2.1.04	demonstrate curiosity, initiative and creativity by observing, classifying, comparing and analyzing natural objects in the environment.
SC.O.2.1.05	manipulate scientific instruments and everyday materials to investigate the natural world (e.g., hand lens, balance, thermometer, metric ruler, magnets, weather instruments, or calculators).
SC.O.2.1.06	measure the length and width of various objects using standard and non-standard units (e.g., metric ruler, paper clips, or counting bears).
SC.O.2.1.07	use safe and proper techniques for handling, manipulating, and caring for science materials (e.g., follow safety rules, maintain a clean work area, or treat living organisms humanely).
SC.O.2.1.08	design and conduct simple investigations; observe, collect and record information using a variety of classification systems; describe trends of data; and make predictions based on that data (e.g., seasonal changes and plants or temperature and weather).

Grade 2	**Second Grade Science**
Standard 2:	Content of Science
SC.S.2.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories, and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.PD.2.2				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at	Second grade students at	Second grade students at	Second grade students at	Second grade students at

the distinguished level in the content of science:	the above mastery level in the content of science:	the mastery level in the content of science:	the partial mastery level in the content of science:	the novice level in the content of science:
create a plant or animal and design the structures and their functions that will allow it to survive in a particular habitat;	compare and contrast the structures, life cycle, and habitats of human to other organisms;	compare the structures, life cycle, and habitats of human to other organisms;	describe the structures, life cycle, and habitats of human and other organisms;	identify the structures, life cycle, and habitats of human and other organisms;
design simple investigations that will show changes in state of matter, properties of light, heat, sound, and magnetism;	explain the causes for change in the state of matter, the connection between force and motion and the properties of light, heat, sound, and magnetism;	identify physical properties and changes of matter and explore their relationship to sound, light, heat, motion and magnetic force;	collect and display examples of: the states of matter, heat, light, sound, and magnets;	recognize the properties of matter, light, heat and magnetism;
design an experiment to investigate the effects of wind and water on a surface and record findings;	explain the connections between geographical features, fossils, and erosion/weathering;	distinguish between erosion and weathering on the earth's surface and explain how fossils were formed;	describe the effects of wind and water on the surface of the earth and identify fossils;	recognize that the earth has changed over time and fossils were formed;
use models to explain the moon phases and seasonal changes.~~Second grade students at the distinguished level relate various structures and functions of different plants and animals; compare and contrast various life cycles of plant and animals; explain the differences in organisms that live in various habitats; compare and contrast the changes in states of matter; predict the~~	compare and contrast the changes in the sky with changes on earth.~~Second grade students at the above mastery level compare and contrast structures of plant and animals; construct diagrams to represent life cycles of various plants and animals; predict the organisms that would live in a habitat; explain the changes in each state of matter; investigate properties of light, heat, and~~	identify patterns in seasons of the year, day and night, and phases of the moon.~~Second grade students at the mastery level identify and explain various structures and functions in plants and animals; sequence illustrations of plant and animal life cycles and relate them to the human life cycle; compare and contrast habitats; identify physical properties and changes of~~	make observations about the seasons of the year and changes in the sky. ~~Second grade students at the partial mastery level identify various structures of plant and animals; describe life cycles of plants and animals and different habitats; identify physical properties of matter; identify the properties of light, heat, and magnetism; explore the motion of objects; identify the changes in the earth~~	list and describe the seasons of the year.~~Second grade students at the novice level name structures of plants and animals; identify plant and animal life cycles; list habitats; name a physical property of matter; recognize properties of light, heat, and magnetism; describe an object's motion; describe daily weather changes; identify a fossil.~~

~~properties of light, heat, and magnetism; predict motion when force is applied; design an experiment to show variable pitch; predict changes in the earth and sky; examine and classify fossils.~~	~~magnetism; explain the effects of force verses motion and the changes in pitch and volume; compare and contrast the changes on earth and in the sky; describe and correlate fossils to original organisms.~~	~~matter; identify and demonstrate properties of light, heat, and magnetism; explore sound and compare the force and motion of objects; observe, identify and explain the changes in earth and the sky; describe and correlate fossils to original organisms.~~	~~and sky; explain how fossils form.~~	

Objectives	Students will
SC.O.2.2.01	identify that plants and animals have different structures.
SC.O.2.2.02	identify the structures of living things including their systems, and explain their functions (e.g., wings for flying, fins for swimming, or roots for support and obtaining water).
SC.O.2.2.03	sequence pictures of events to illustrate the changes in the life cycle of plants and animals.
SC.O.2.2.04	relate observations of the butterfly's life cycle to student's own growth and change.
SC.O.2.2.05	compare and contrast simple models of different kinds of habitats, including a forest and a stream.
SC.O.2.2.06	identify materials as a solid, a liquid or a gas and recognize that matter takes up space, and can change from one state to another.
SC.O.2.2.07	demonstrate that a magnet can attract or repel objects.
SC.O.2.2.08	identify which materials and colors conduct heat better than others.
SC.O.2.2.09	demonstrate that a shadow is cast when an object blocks light.
SC.O.2.2.10	compare the effects of force on the motion of an object.
SC.O.2.2.11	explore how sound can change in pitch and volume.
SC.O.2.2.12	identify and examine changes in the earth's surface (e.g., weathering, or erosion).
SC.O.2.2.13	identify the effects of wind movement.
SC.O.2.2.14	observe and describe different types of precipitation.
SC.O.2.2.15	describe daily and seasonal weather changes.
SC.O.2.2.16	explain how the rotation of the Earth on its axis causes day and night.
SC.O.2.2.17	understand that the moon has phases.
SC.O.2.2.18	describe how fossils are formed, and match a fossil, or a picture of a fossil, to its original organism.

Grade 2	**Second Grade Science**
Standard 3:	Application of Science

SC.S.2.3	Students will • identify how the parts of a system interact. • recognize and use models as representations of real things. • observe that changes occur gradually, repetitively, or randomly within the environment. • recognize that common objects and events incorporate science to solve human problems and enhance the quality of life. • demonstrate the ability to listen to, be tolerant of, and evaluate the impact of different points of view on health, population, resources and environmental practices while working in collaborative groups.

Performance Descriptors SC.PD.2.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Second grade students at the distinguished level of the application of science: construct a model to show how a system works and how it may change the environment, and design a conservation program that involves their community and work cooperatively to implement the plan.~~Second grade students at the distinguished level describe and identify how parts of a system interact; construct and describe a model; observe and identify patterns of change, consistency or regularity within the environment; use technology to gather and communicate data; demonstrate tolerance of different points of view; engage and involve the~~	Second grade students at the above mastery level of the application of science: relate interactions of a system with changes in the environment, and use technology to investigate conservation programs and share findings. ~~Second grade students at the above mastery level describe and identify how parts of a system interact; construct a model as representations of real things; observe and identify patterns of change, consistency or regularity within the environment; use technology to gather data; demonstrate tolerance of different points of view; engage in conservation practices.~~	Second grade students at the mastery level of the application of science: identify how parts of a system interact and bring about change to the environment, and organize a plan for showing respect for the environment, listen to and be tolerant of different viewpoints. ~~Second grade students at the mastery level identify how parts of a system interact; recognize and use models as representations of real things; observe and identify patterns of change, consistency or regularity within the environment; recognize that science is incorporated into solving problems and enhancing daily life; demonstrate tolerance of different points of view; engage in~~	Second grade students at the partial mastery level of the application of science: identify parts of a system and use models as representations of real things, and work collaboratively to identify ways science has changed the quality of life. ~~Second grade students at the partial mastery level list parts of a system; recognize and use models; name patterns of change within the environment; give examples of science and technology in daily events work in collaborative groups; list conservation practices.~~	Second grade students at the novice level of the application of science: give an example of a system and a model, and work collaboratively to list ways to be responsible for the environment. ~~Second grade students at the novice level name a system; recognize models; list an environmental change; name an example of technology in daily events; name a conservation practice.~~

~~community in conservation practices.~~		~~conservation practices.~~		

Objectives	Students will
SC.O.2.3.01	identify parts of systems and identify how they interact with one another.
SC.O.2.3.02	use models as representations of real things.
SC.O.2.3.03	observe that changes occur gradually, repetitively, or randomly within the environment.
SC.O.2.3.04	recognize that common objects and events incorporate science (e.g., CD players, Velcro, or weather) to solve human problems and enhance the quality of life.
SC.O.2.3.05	listen to and be tolerant of different viewpoints while working in collaborative groups.
SC.O.2.3.06	develop respect and responsibility for the environment by engaging in conservation practices (e.g., recycling, trash clean-up, or power consumption reduction).

Third Grade Science Content Standards and Objectives

The Third Grade Science objectives build upon problem-solving and experimentation and move into a more in-depth study of science. Through a spiraling, inquiry-based program of study, all students will demonstrate scientific literacy in the fields of biology, chemistry, physics and earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes, and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated in all activities. Third Grade Science highlights science-related careers. The study of geology and astronomy expands in Third Grade Science. Collecting materials, testing the materials, recording data and developing concepts related to physics and chemistry are introduced to expand investigative abilities that lead to logical conclusions. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 3	Science
Standard 1:	Nature of Science
SC.S.3.1	Students will • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. • demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.

Performance Descriptors SC.PD.3.1

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Third grade students at the distinguished level of the nature of science: compare and contrast the contributions that different cultures have made to science; and make predictions, use the scientific method to design and conduct safe	Third grade students at the above mastery level of the nature of science: research the contributions that different cultures have made to science; and make predictions, use the scientific method to plan and conduct safe and	Third grade students at the mastery level of the nature of science: describe the contributions that different cultures have made to science; and use the scientific method to conduct safe and simple controlled	Third grade students at the partial mastery level of the nature of science: recognize the contributions that different cultures have made to science; and conduct safe and simple controlled investigations and record	Third grade students at the novice level of the nature of science: name a scientist from a different culture; and safely participate in simple controlled investigations.~~Third grade~~

and controlled investigations with multiple trials, and interpret the data.~~Third grade students at the distinguished level research scientists from different cultures and backgrounds and present their findings using technology; design and conduct an investigation using safe techniques; interpret, predict, and present data, control variables and conduct multiple trials.~~	controlled investigations, and interpret data. ~~Third grade students at the above mastery level compare and contrast the lives and discoveries of scientists from different cultures and backgrounds and identify their discoveries; plan and conduct investigations using safe techniques; interpret and present data and control variables.~~	investigations and interpret data. ~~Third grade students at the mastery level study scientists from different cultures and backgrounds and identify their discoveries; recognize that scientific explanations lead to new discoveries; plan and conduct simple investigations using safe techniques; interpret and present data; control variables, and explore science careers in the community.~~	data.~~Third grade students at the partial mastery level name scientists from different cultures and backgrounds and recall their discoveries; conduct investigations using safe techniques; identify variables, and record data.~~	~~students at the novice level name a scientist from a different culture and background; and observe and participate in investigations using safe techniques.~~

Objectives	Students will
SC.O.3.1.01	recognize that scientific explanations may lead to new discoveries (e.g., new knowledge leads to new questions).
SC.O.3.1.02	study the lives and discoveries of scientists of different cultures and backgrounds.
SC.O.3.1.03	explore science careers in the community.
SC.O.3.1.04	demonstrate curiosity, initiative and creativity by planning and conducting simple investigations.
SC.O.3.1.05	recognize that developing solutions to problems takes time, patience and persistence through individual and cooperative ventures.
SC.O.3.1.06	support statements with facts found through research from various sources, including technology.
SC.O.3.1.07	use scientific instruments, technology, and everyday materials to investigate the natural world.
SC.O.3.1.08	use safe and proper techniques for handling, manipulating and caring for science materials (e.g., follow safety rules, maintain a clean work area, or treat living organisms humanely).
SC.O.3.1.09	apply mathematical skills and use metric units in measurements.
SC.O.3.1.10	interpret data presented in a table, graph, map or diagram and use it to answer questions and make predictions and inferences based on patterns of evidence.
SC.O.3.1.11	Identify and control variables.

Grade 3	**Science**
Standard 2:	Content of Science

SC.S.3.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories, and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.PD.3.2

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Third grade student at the distinguished level in the content of science:	Third grade student at the above mastery level in the content of science:	Third grade student at the mastery level in the content of science:	Third grade student at the partial mastery level in the content of science:	Third grade student at the novice level in the content of science:
create a method of classification for various organisms and evaluate how well structures are adapted to specific environments;	classify a variety of organisms according to their characteristics and explain how their structures are adaptations to specific environments;	compare the structures and functions of organisms and explain how they are adapted to their environments;	list the structures and functions of organisms and ways they are used to interact with their environment;	list the characteristics of living things and describe their environments;
investigate the properties of matter and recognize that temperature can be used to change the phases;	describe the properties and phases of matter and recognize that temperature can be used to change the phases;	identify the properties of matter and recognize that temperature can be used to change the phases;	identify the properties and phases of matter;	name the three states of matter;
compare and contrast the affects of reflecting and refracting light with a variety of lenses and mirrors;	manipulate light, lens, and mirrors to explain reflection, refraction, and color;	manipulate light, lens, and mirrors to demonstrate reflection, refraction, and color;	relate the color of an object to reflection of light;	recognize that light can be reflected;
explain the relationship between speed, distance and time and between work, force, and distance;	measure and record changes in the variables affecting work and speed;	demonstrate work, speed, and imbalanced forces;	identify and describe force, motion, and speed;	give examples of force, motion, and speed;
explain the relationship between kinetic and potential energy;	compare and contrast kinetic and potential energy;	identify examples of kinetic and potential energy;	list examples of kinetic energy;	identify examples of kinetic energy;

research and evaluate the consequences of forces that change earth's surface and explore how technologies are used to predict the impact of future occurrences, and	compare and contrast earth's layers and relate the forces and processes that affect the surface to the resulting geological features, and	contrast earth's layers, describe forces and processes that affect the surface, and identify the resulting geological features, and	describe earth's layers and explain how erosion, volcanoes and earthquakes change the surface, and	state that erosion, volcanoes, and earthquakes change the earth's surface, and
compare and contrast planets and use models to explain the effects of alignment of the earth, moon and sun.~~Third grade students at the distinguished level construct and use classification systems based on the structure and physical characteristics of living things and propose how adverse factors affect the interrelationships of organisms; investigate and describe various properties of matter including states of matter, physical and chemical properties/ changes; design an experiment to test the reflection, refraction, and absorption of light by objects; measure and record changes in the direction of an object when forces have been applied; demonstrate the~~	compare earth to other planets and use models to explain the movement of the earth, moon, sun, and planets.~~Third grade students at the above mastery level classify a variety of organisms according to specific physical characteristics and explain the importance of plants and animals adapting to their environment; describe physical and chemical properties of matter and recognize change in temperature to state of matter; demonstrate that light can be reflected and refracted; explain the relationship between speed, distance, and time when forces have been applied; compare changes in the Earth's surface that are due to erosion, volcanic eruptions, and earthquakes; explain how fossils provide~~	describe the planets and use diagrams to explain the movements of the earth and moon in relation to the sun.~~Third grade students at the mastery level compare the physical characteristics, structures, and behaviors of living things and explain how they function, change and adapt to their environment; identify physical and chemical properties of matter including density and changes in states of matter; investigate the properties of light energy; recognize the principles of force and motion and identify examples of potential and kinetic energy; examine the relationship between speed, distance and time; explore and describe how erosion, volcanoes, and earthquakes change Earth's surface; identify fossils as a record~~	name the planets and use a diagram to describe the movements of the earth and moon in relation to the sun.~~Third grade students at the partial mastery level list ways living things function, change, and interact with each other and their environment; identify physical properties of matter; relate the color of an object to reflection; demonstrate the principles of force and motion; describe how erosion, volcanoes, and earthquakes change Earth's surface; describe how fossils are formed; name the planets; describe the motion of Earth and moon in relation to the sun; name the three types of rocks; describe geographical features and identify layers of the Earth.~~	draw a diagram of the earth and moon in relation to the sun.~~Third grade students at the novice level list the physical characteristics of living things; name the three states of matter; recognize that light can be reflected; give an example of energy of motion; list erosion, earthquakes, and volcanoes as changes that affect Earth's surface; match a fossil to its original organism; draw a model of the earth and moon in relation to the sun; list physical characteristics of rocks, name geographical features of the Earth.~~

~~relationships between speed, distance, and time; evaluate the consequences of earthquakes and volcanic eruptions and explore how technologies are used to help predict the impact of future occurrences; explain the effects of the alignment of earth, moon, and sun on the earth; compare and contrast rocks and minerals and factors that affect their formation; infer how natural processes and human behavior affect geographical features.~~	~~evidence about prehistoric life; compare and contrast the planets and their movement; differentiate between types of rocks and their formation; construct and interpret models that illustrate the geographical features and layers of the earth.~~	~~of time; describe the relative movement of the earth and moon in relation to the sun; describe the planets; identify the composition of rocks and explain how they are formed; compare and contrast layers of the Earth; identify geographical features using a model or map.~~		

Objectives	Students will
SC.O.3.2.01	identify the structures of living things, including their systems and explain their functions.
SC.O.3.2.02	observe, measure and record changes in living things (e.g., growth and development, or variations within species).
SC.O.3.2.03	compare physical characteristics and behaviors of living organisms and explain how they are adapted to a specific environment (e.g., beaks and feet in birds, seed dispersal, camouflage, or different types of flowers).
SC.O.3.2.04	observe and describe relationships among organisms and predict the effect of adverse factors.
SC.O.3.2.05	relate the buoyancy of an object to its density.
SC.O.3.2.06	identify physical and chemical properties.
SC.O.3.2.07	relate changes in states of matter to changes in temperature.
SC.O.3.2.08	investigate the dissolving of solids in liquids.
SC.O.3.2.09	investigate the reflection and refraction of light by objects.
SC.O.3.2.10	relate how the color of an object is based upon the reflection of light.
SC.O.3.2.11	recognize that it takes work to move objects over a distance.
SC.O.3.2.12	examine the relationships between speed, distance, and time.
SC.O.3.2.13	recognize that the greater a force is exerted on an object, the greater the change of its motion.
SC.O.3.2.14	identify examples of potential and kinetic energy.
SC.O.3.2.15	identify fossils as a record of time.
SC.O.3.2.16	explore erosion of different materials by water and wind (e.g., sand, soil, or rocks).
SC.O.3.2.17	describe how volcanoes and earthquakes affect the Earth.

SC.O.3.2.18	recognize the relative movement of the Earth and moon in relation to the sun.
SC.O.3.2.19	describe the similarities and differences among the planets.
SC.O.3.2.20	identify properties of minerals and recognize that rocks are composed of different minerals.
SC.O.3.2.21	explain how igneous, sedimentary and metamorphic rocks are formed.
SC.O.3.2.22	identify geographical features using a model or map.
SC.O.3.2.23	compare and contrast the layers of the Earth and their various features.

Grade 3	**Science**
Standard 3:	Application of Science
SC.S.3.3	• Students will • identify how the parts of a system interact. • recognize and use models as representations of real things. • observe and identify patterns of change, consistency or regularity within the environment. • demonstrate the ability to utilize technology to gather and organize data to communicate designs, results and conclusions. • identify that a solution to a problem often creates new problems. • demonstrate the ability to listen to, be tolerant of, and evaluate the impact of different points of view on health, population, resources and environmental practices while working in collaborative groups.

Performance Descriptors SC.PD.3.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Third grade students at the distinguished level of the application of science: construct and use models to explain how parts of a system interact or to explain abstract ideas; predict patterns of change within the environment; solve scientific problems and design solutions to the new problems created;	Third grade students at the above mastery level of the application of science: construct models to represent how parts of a system interact; explain patterns of change, consistency or regularity within the environment; solve scientific problems and evaluate solutions to the new problems created;	Third grade students at the mastery level of the application of science: use models to represent how parts of a system interact; observe and identify patterns of change, consistency or regularity within the environment; recognize that solving scientific problems is a process that may lead to	Third grade students at the partial mastery level of the application of science: use models and list parts of a system; name patterns of change within the environment; recognize scientific problems;	Third grade students at the novice level of the application of science: recognize models and name a system; name an environmental change; identify scientific problems;

apply technology to solve problems, gather and communicate data, and demonstrate tolerance and be receptive to new ideas when presented valid information. ~~Third grade students at the distinguished level explain how parts of a system interact; construct and explain a model that represents an abstract idea; predict patterns of change within the environment; apply technology to solve problems, gather and communicate data; demonstrate tolerance of different points of view and the willingness to modify ideas when new and valid information is presented.~~	use technology to gather and communicate data, and discuss different points of view and demonstrate tolerance. ~~Third grade students at the above mastery level describe and identify how parts of a system interact; construct a model; observe and identify patterns of change, consistency or regularity within the environment; use technology to gather and communicate data; demonstrate tolerance of different points of view.~~	new problems; cite examples of science and technology in daily events, and demonstrate tolerance of different points of view. ~~Third grade students at the mastery level identify how parts of a system interact; recognize and use models as representations of real things; observe and identify patterns of change, consistency or regularity within the environment; cite examples of science and technology in daily events;demonstrate tolerance of different points of view.~~	recognize examples of science and technology in daily events, and listen to other points of view.~~Third grade students at the partial mastery level list parts of a system; recognize and use models; name patterns of change within the environment; cite examples of science and technology in daily events; work in collaborative groups.~~	identify examples of science and technology in daily events, and work in collaborative groups.~~Third grade students at the novice level name a system; recognize models; name an environmental change, cite examples of science and technology in daily events.~~

Objectives	~~Students will~~
SC.O.3.3.01	identify that systems are made of parts that interact with one another.
SC.O.3.3.02	use models as representations of real things.
SC.O.3.3.03	observe that changes occur gradually, repetitively, or randomly within the environment and question causes of changes.
SC.O.3.3.04	given a set of objects, group or order the objects according to an established scheme.
SC.O.3.3.05	given a set of events, objects, shapes, designs, or numbers, formulate patterns of constancy or regularity.
SC.O.3.3.06	cite examples of the uses of science and technology in common daily events and in the community.
SC.O.3.3.07	explain a simple problem and identify a specific solution describing the use of tools and/or materials to solve the problem or to complete the task.
SC.O.3.3.08	recognize that a solution to one scientific problem often creates new problems (e.g., recycling, pollution, conservation, or waste disposal).

SC.O.3.3.09	listen to and be tolerant of different viewpoints by engaging in collaborative activities and be willing to modify ideas when new and valid information is presented.
SC.O.3.3.10	develop respect and responsibility for the environment by engaging in conservation practices.
SC.O.3.3.11	describe how modern tools and appliances have positively and/or negatively impacted their daily lives.

Fourth Grade Science Content Standards and Objectives

The Fourth Grade Science objectives build on the study of geology, astronomy, chemistry and physics. Through a spiraling, inquiry-based program of study and the use of 21st century skills, all students will demonstrate scientific literacy in the fields of biology, chemistry, physics and earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated into all activities. Fourth Grade Science promotes cooperative learning, group decisions, cultural diversity, and careers and expands the development of hands-on exploration. Basic science concepts are developed and problem-solving abilities are augmented. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 4	Grade Science
Standard 1:	Nature of Science
SC.S.4.1	Students will • demonstrate an understanding of the history and nature of science as a human endeavor encompassing the contributions of diverse cultures, scientists, and careers. • demonstrate the abilities and understanding necessary to do scientific inquiry. • demonstrate the ability to think and act as scientists by engaging in active inquiries and investigations, while incorporating hands-on activities.

Performance Descriptors SC.PD.4.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Fourth grade students at the distinguished level of the nature of science: analyze and evaluate the impact of scientific discoveries on present day society using research and technology safely. use safe procedures and proper tools designing	Fourth grade students at the above mastery level of the nature of science: explain how scientific discoveries have created new careers in West Virginia; use safe procedures and proper tools when observing	Fourth grade students at the mastery level of the nature of science: show that discoveries lead to changes in scientific knowledge in all cultures and backgrounds; use safe procedures and proper tools when observing	Fourth grade students at the below mastery level of the nature of science: recognize the scientific knowledge has changed over time; use safe procedures, proper tools, and the scientific	Fourth grade students at the novice level of the nature of science: name a scientist and from a different culture and their discovery or invention; use safe techniques to investigate, collect and

experiments, and evaluating data, and justifying conclusions. ~~Fourth grade students at the distinguished level analyze and evaluate new discoveries and examine how they impact society; design and conduct an investigation based on previous investigations using safe techniques and critiquing the results of both, using technology to present and defend their conclusions.~~	scientific processes, designing experiments, and evaluating data.~~Fourth grade students at the above mastery level explain how new discoveries lead to new careers; analyze and evaluate data and design a plan to further the investigation through research and technology.~~	scientific processes, designing experiments, and interpreting the data based patterns of evidence.~~Fourth grade students at the mastery level recognize that new discoveries lead to changes in scientific knowledge; interpret data and draw and support conclusions; make predictions and inferences based on patterns of evidence; design simple experiments using safe techniques, and support conclusions with evidence found through research.~~	method when conducting investigations and drawing conclusions.~~Fourth grade students at the partial mastery level recognize that scientific knowledge changes over time; collect and interpret data using safe techniques.~~	display data, and draw conclusions based on data.~~Fourth grade students at the novice level identify scientific discoveries; and participate in investigations using safe techniques and collect data using safe techniques.~~

Objectives	Students will
SC.O.4.1.01	explain how new discoveries lead to changes in scientific knowledge.
SC.O.4.1.02	study the lives and discoveries of scientists of different cultures and backgrounds.
SC.O.4.1.03	explore science careers in West Virginia.
SC.O.4.1.04	demonstrate curiosity, initiative and creativity by developing questions that lead to investigations; designing simple experiments; and trusting observations of discoveries when trying new tasks and skills.
SC.O.4.1.05	recognize that developing solutions to problems requires persistence, flexibility, open-mindedness, and alertness for the unexpected.
SC.O.4.1.06	support statements with facts found through research from various sources, including technology.
SC.O.4.1.07	use scientific instruments, technology and everyday materials to investigate the natural world.
SC.O.4.1.08	demonstrate safe and proper techniques for handling, manipulating and caring for science materials.
SC.O.4.1.09	construct a hypothesis when provided a problem.
SC.O.4.1.10	establish variables and controls in an experiment; test variables through experimentation.
SC.O.4.1.11	interpret data presented in a table, graph, or diagram and use it to answer questions and make decisions.
SC.O.4.1.12	draw and support conclusions, make predictions and inferences based on patterns of evidence (e.g., weather maps, variation of plants, or frequency and pitch of sound).
SC.O.4.1.13	apply mathematical skills and use metric units in measurements and calculations.

Grade 4	**Science**

Standard: 2	
SC.S.4.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories, and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.0.4.2

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Fourth grade students at the distinguished level in the content of science:	Fourth grade students at the above mastery level in the content of science:	Fourth grade students at the mastery level in the content of science:	Fourth grade students at the partial mastery level in the content of science:	Fourth grade students at the novice level in the content of science:
analyze organisms' adaptations in a variety of environments;	compare and contrast the characteristics, interactions, and life cycles of organisms from different environments that help them survive;	distinguish the characteristics, interactions, and life cycles of organisms that help them survive in different environments;	identify characteristics and life cycles of organisms within an environment;	identify the life cycle of an organism;
develop a logical argument for man's role in protecting the plants and animals of our environment;	cite evidence of man's influence (positive or negative) on food webs;	compare and contrast food chains and food webs from different habitats;	construct food chains for specific habitats;	recognize organisms in a food chain;
design an experiment to demonstrate simple physical/chemical changes in the state of matter and analyze the results;	investigate variables that affect the rate of change in matter;	explain the causes of physical/chemical changes in matter;	list the states of matter and the physical properties of each;	name the states of matter;
create an investigation to determine if materials are conductors or non conductors;	diagram and construct a simple electrical circuit;	describe the transformations that occur between different forms of energy;	identify conductor/non-conductor materials in an electrical circuit;	list the types of energy;
form an investigation that proves changes in length,	draw conclusions based on motion and applied force;	predict how motion and force can effect frequency	demonstrate and explain how forces can change	demonstrate motion and force;

tension and/or thickness affect motion; research the amount of usable fresh water on earth and design a water conservation plan; create a model of the solar system and use it to explain the orbital paths of planets and the Earth's moon.~~Fourth grade students at the distinguished level when given an environment, predict organisms, their characteristics, variations, life cycles, and interactions; predict how environmental changes will affect a food web; design an investigation involving physical and chemical properties of matter; develop an energy transformation web; diagram and construct an electrical circuit; draw conclusions based on motion and applied force investigations; compare and contrast factors that affect the rate of change of earth's composition; describe how the different types of rocks are formed; research estuaries; make valid predictions on location and	explain the relationships between the types of rocks and the factors that change earth's surface; use models to explain the movement within the solar system and the changes in the night sky.~~Fourth grade students at the above mastery level compare and contrast the characteristics, variations, and life cycles of organisms within different environments; construct and explain models of habitats, food chains, and food webs; investigate and analyze changes in states of matter; describe energy transformations; diagram an electrical circuit; draw conclusions based on motion and applied force investigations; compare factors that affect the rate of change of earth's composition; differentiate between types of rocks; explain the differences between ocean and fresh water; compare and contrast the movement of objects within the universe.	and pitch; determine the relationships between the types of rocks and the factors that change on earth's surface; use models to describe the movement within the solar system and the changes in the night sky.~~Fourth grade students at the mastery level observe and distinguish characteristics, variation, and life cycles of organisms and how they interact within the environment; construct and explain models of habitats, food chains, and food webs; investigate and describe various properties of matter including states of matter, physical and chemical properties/changes; describe energy transformations, investigate conductors / nonconductors and electrical circuits, predict and investigate motion/force, and frequency/pitch; describe earth's geological composition and how it changes; differentiate between types of rocks;	motion; identify the effects of volcanoes, earthquakes, landslides, floods and weather on earth's surface; identify objects in the solar system and describe the changes in the night sky. ~~Fourth grade students at the partial mastery level describe life cycles of organisms and the environment in which they live; identify habitats, food chains and food webs; list states of matter and physical properties; identify different forms of energy; investigate conductors and nonconductors; demonstrate motion and force; identify changes caused by volcanoes, earthquakes, and landslides; list three types of rocks in the rock cycle; name examples of oceans and fresh water; identify objects within the universe.~~	recognize that the land and water of the earth is constantly changing; identify the sun as a star and list the planets in the solar system.~~Fourth grade students at the novice level Identify the life cycle of an organism; name organisms in a food chain; list states of matter; identify a conductor and nonconductor; identify motion and force; recognize that volcanoes, earthquakes, and landslides change the earth; name one type of rock; name an example of an ocean or fresh water; list objects within the solar system.~~

~~movement of objects within the universe.~~		~~compare ocean/fresh water; identify and describe objects within the universe and their movement.~~		

Objectives	Students will
SC.0.4.2.01	describe the different characteristics of plants and animals, which help them to survive in different niches and environments.
SC.0.4.2.02	associate the behaviors of living organisms to external and internal influences (e.g., hunger, climate, or seasons).
SC.0.4.2.03	identify and classify variations in structures of living things including their systems and explain their functions (e.g., skeletons, teeth, plant needles, or leaves).
SC.0.4.2.04	compare and sequence changes in cycles in relation to plant and animal life.
SC.0.4.2.05	give examples how plants and animals closely resemble their parents and that some characteristics are inherited from the parents and others result from interaction with the environment.
SC.0.4.2.06	identify human uses of plants and animals (e.g., food sources, or medicines).
SC.0.4.2.07	describe the effects of altering environmental barriers on the migration of animals.
SC.0.4.2.08	construct and explain models of habitats, food chains, and food webs.
SC.0.4.2.09	investigate how properties can be used to identify substances.
SC.0.4.2.10	design an experiment to investigate the dissolving of solids and analyze the results.
SC.0.4.2.11	examine simple chemical changes (e.g., tarnishing, rusting, or burning).
SC.0.4.2.12	explain that materials including air take up space and are made of parts that are too small to be seen without magnification.
SC.0.4.2.13	differentiate changes in states of matter due to heat loss or gain.
SC.0.4.2.14	investigate variables that affect the rate of evaporation of a liquid.
SC.0.4.2.15	compare and classify liquids based on density.
SC.0.4.2.16	identify different forms of energy and describe energy transformations that occur between them (e.g., electrical to heat, or radiant to chemical).
SC.0.4.2.17	examine types and properties of waves (e.g., transverse, longitudinal, frequency, or wavelengths).
SC.0.4.2.18	investigate static electricity and conductors/nonconductors of electricity.
SC.0.4.2.19	construct simple electrical circuits.
SC.0.4.2.20	describe and explain the relationship between a compass and a magnetic field.
SC.0.4.2.21	relate motion of an object to its frame of reference.
SC.0.4.2.22	predict and investigate the motion of an object if the applied force is changed.
SC.0.4.2.23	explore that sounds are produced by vibrating objects and columns of air and form conclusions about the relationship between frequency and pitch of sound.
SC.0.4.2.24	investigate the change in the length, tension, or thickness of the vibrating object on the frequency of vibration (e.g., string, wire, or rubber band).
SC.0.4.2.25	examine the geologic time scale.
SC.0.4.2.26	locate and identify patterns of stars and their change in location throughout the year.

SC.0.4.2.27	compare and explain the relative time differences to erode materials.
SC.0.4.2.28	investigate the cause and effects of volcanoes, earthquakes and landslides.
SC.0.4.2.29	interpret a weather chart or map and predict outcomes.
SC.0.4.2.30	identify the sun as a star.
SC.0.4.2.31	explain the effects of alignment of earth, moon and sun on the earth.
SC.0.4.2.32	describe and explain the planets orbital paths.
SC.0.4.2.33	differentiate between types of rock and describe the rock cycle.
SC.0.4.2.34	compare ocean water and fresh water.
SC.0.4.2.35	investigate soil types and soil composition.

Grade 4	**Science**
Standard 3:	Application of Science
SC.S.4.3	Students will • identify how the parts of a system interact. • recognize and use models as representations of real things. • observe and identify patterns of change, consistency or regularity within the environment. • demonstrate the ability to utilize technology to gather and organize data to communicate designs, results and conclusions. • identify that a solution to a problem often creates new problems. Demonstrate the ability to listen to, be tolerant of, and evaluate the impact of different points of view on health, population, resources and environmental practices while working in collaborative groups.

Performance Descriptors SC.PD.4.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Fourth grade students at the distinguished level of the application of science: design a model that uses system interaction to solve a problem and explain how this model may create a new problem; argue the positive/negative consequences of technological changes in our environment;	Fourth grade students at the above mastery level of the application of science: construct a model to show system interaction; predict the environmental changes if conservation is not practiced;	Fourth grade students at the mastery level of the application of science: identify how parts of a system interact by creating a model; give cause and effect for changes that occur in our environment;	Fourth grade students at the partial mastery level of the application of science: use models to identify parts of a system; identify patterns that cause change in our environment;	Fourth grade students at the novice level of the application of science: identify a system using a model; list changes that occur in our environment;

debate the findings of your research, being tolerant of the viewpoint of others. ~~Fourth grade students at the distinguished level explain how parts of a system interact; construct and explain a model that represents an abstract idea; predict patterns of change within the environment; apply technology to solve problems, gather and communicate data; demonstrate tolerance of different points of view, and the willingness to modify ideas when new and valid information is presented.~~	work collaboratively to gather data and use technology to present findings.~~Fourth grade students at the above mastery level describe and identify how parts of a system interact; construct a model; observe and identify patterns of change, consistency or regularity within the environment; apply technology to solve problems, gather and communicate data; demonstrate tolerance of different points of view.~~	use a variety of resources and technology to gather data, communicate ideas, and solve problems.~~Fourth grade students at the mastery level identify how parts of a system interact; recognize and create models as representations of real things; observe and identify patterns of change, consistency or regularity within the environment; apply technology to solve problems, gather and communicate data; demonstrate tolerance of different points of view.~~	work collaboratively to solve simple problems. ~~Fourth grade students at the partial mastery level identify parts of a system; recognize and use models; list patterns of change within the environment; gather and communicate data using technology; work in collaborative groups.~~	listen to and be tolerant of different viewpoints and problem solutions.~~Fourth grade students at the novice level identify a system; recognize models; list changes within the environment; gather and communicate data using technology.~~

Objectives	Students will
SC.0.4.3.01	identify that systems are made of parts that interact with one another.
SC.0.4.3.02	create models as representations of real things.
SC.0.4.3.03	observe that changes occur gradually, repetitively, or randomly within the environment and question causes of change.
SC.0.4.3.04	given a set of objects, group or order the objects according to an established scheme.
SC.0.4.3.05	given a set of events, objects, shapes, designs, or numbers, find patterns of constancy or regularity.
SC.0.4.3.06	identify and explain a simple problem or task to be completed; identify a specific solution; and list task requirements.
SC.0.4.3.07	use an appropriate engineering design to solve a problem or complete a task.
SC.0.4.3.08	recognize that a solution to one scientific problem often creates new problems (e.g., recycling, pollution, conservation, waste disposal, or need for technology).
SC.0.4.3.09	listen to and be tolerant of different viewpoints by engaging in collaborative activities and modifying ideas when new and valid information is presented from a variety of resources.
SC.0.4.3.10	describe the positive and negative consequences of the application of technology on personal health and the environment.
SC.0.4.3.11	develop respect and responsibility for the environment by engaging in conservation practices.

Fifth Grade Science Content Standards and Objectives

The Fifth Grade Science objectives identify, compare, classify and explain our living and designed worlds. Through a spiraling, inquiry-based program of study all students will demonstrate scientific literacy and the use of 21st century skills in the fields of biology, chemistry, physics, and earth and space sciences. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations, and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated in all activities. Fifth Grade Science reviews earth and the sky, life cycles and habitats of organisms, properties, positions and motions of objects and energy. New major concepts introduced at the fifth grade level include changes in properties of matter, structures, functions and adaptations of organisms, and the structure of the earth's system. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 5	Science
Standard 1:	Nature of Science
SC.S.5.1	Students will • demonstrate an understanding of the history of science and the evolvement of scientific knowledge. • demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists. • demonstrate an understanding of the characteristics of a scientist. • demonstrate skills of scientific inquiry.

Performance Descriptors SC.PD.5.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Fifth grade students at the distinguished level in the nature of science: evaluate the importance of the research of scientists in diverse cultures throughout history; are creative when designing an investigation, and	Fifth grade students at the above mastery level in the nature of science: explain the sequential relevance of the research of scientists in diverse cultures throughout history; determine the correct tools and apply skepticism when conducting an investigation,	Fifth grade students at the mastery level in the nature of science: compare and contrast the research of scientists in diverse cultures throughout history; use careful methodology and logical reasoning to safely conduct an	Fifth grade students at the partial mastery level in the nature of science: describe the research of scientists in diverse cultures throughout history; use safe procedures, proper tools, and the scientific method when conducting an	Fifth grade students at the novice level in the nature of science: list scientists of diverse cultures and their inventions or discoveries; follow the scientific method and use safety practices when conducting an

evaluate data and justify conclusion.~~Fifth grade students at the distinguished level describe the importance of the research of historical and diverse scientists in society and culture; skepticism, use careful methodology and creativity to conduct investigations; predict, hypothesize, identify variables, organize and interpret experimental data using safe investigative techniques.~~	and organize data to determine relationships of the variables within an experiment. ~~Fifth grade students at the above mastery level describe the research of historical and diverse scientists in society and culture; use careful methodology and creativity to conduct an investigation; demonstrate safe investigative techniques; make predictions and organize data; suggest experimental variables for investigations.~~	investigation, and support conclusions with observations and organized data. ~~Fifth grade students at the mastery level recognize the research of historical and diverse scientists in society and culture; use careful methodology to observe, measure and record data as part of an investigation; demonstrate safe investigative techniques.~~	investigation, and base conclusions on observations and recorded data.~~Fifth grade students at the partial mastery level recognize the findings of historical or diverse scientists in society and culture; use a methodology to observe, measure and record data; demonstrate safe investigative techniques; recognize factors that change in an experiment.~~	investigation, and base conclusions on observations and data.~~Fifth grade students at the novice level recognize the findings of a scientist; observe, measure and record data; demonstrate safe investigative techniques.~~

Objectives	Students will
SC.O.5.1.01	realize that scientists formulate and test their explanations of nature using observation and experiments.
SC.O.5.1.02	recognize scientific knowledge is subject to modification as new scientific information challenges current explanations.
SC.O.5.1.03	examine the careers and contributions of men and women of diverse cultures to the development of science.
SC.O.5.1.04	compare and contrast the historical significance of scientific discoveries.
SC.O.5.1.05	cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems.
SC.O.5.1.06	formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection.
SC.O.5.1.07	apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe.
SC.O.5.1.08	use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world.
SC.O.5.1.09	demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms.
SC.O.5.1.10	utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables).
SC.O.5.1.11	construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data.
SC.O.5.1.12	use inferential reasoning to make logical conclusions from collected data.

Grade 5	**Science**

Standard 2:	Content of Science
SC.S.5.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.PD.5.2

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Fifth grade students at the distinguished level in the content of science:	Fifth grade students at the above mastery level in the content of science:	Fifth grade students at the mastery level in the content of science:	Fifth grade students at the partial mastery level in the content of science:	Fifth grade students at the novice level in the content of science:
describe the relationships between structures, functions, and energy use of organisms within systems,	identify and explain the structures and functions of organisms and cycles within systems,	identify the structures and functions of organisms and cycles within systems,	identify the structures of organisms and cycles within systems;	identify structures of living organisms and how they get energy;
analyze the adaptations which enable organisms to survive in a variety of ecosystems;	explore and explain the relationship between the characteristics of organism and their survival in a variety of ecosystems;	explore how characteristics of organism contribute to their survival in a variety of ecosystems;	relate organisms to their specific niches in a variety of ecosystems;	identify niches in various ecosystems;
identify substances by their density experimentally;	identify substances by their density experimentally;	calculate the density of a substance experimentally;	calculate the density of a substance;	identify density as a property of matter;
observe physical changes and experimentally determine that mass is conserved;	observing physical changes and describe how mass is conserved;	observing physical changes and recognize that mass is conserved;	identify physical changes;	list physical changes;
select the appropriate materials to design and quantitatively evaluate circuits and electromagnets.	select the appropriate materials to build and test electric circuit s and electromagnet.	build and test simple circuits and electromagnets;	diagram a simple circuit and build an electromagnet;	identify a simple circuit and identify an electromagnet;

experimentally determine how sound and the motion of objects are affected by variables;	manipulate objects to affect specific changes to sound o the motion of objects;	describe how sound and the motion of objects are affected by variables;	identify variables that affect sound and the motion of objects;	recognize when there has been a change in sound or the motion of objects;
collect and analyze weather data, then use maps to explain the relationships between climate and the surface features of the earth;	collect data and use maps to describe the relationships between weather and the surface features of the earth;	collect weather data and use maps to describe its affect on surface features of the earth;	collect weather data and use maps to identify its affect on surface features of the earth;	use maps and models to describe weather and identify surface features of the earth;
describe appropriate management of renewable and nonrenewable resources, and	differentiate between renewable and nonrenewable resources, and	identify resources as renewable or nonrenewable, and	identify local resources as renewable or nonrenewable, and	identify earth's resources, and
interpret the earth's history using plate tectonics and relative dating.~~Fifth grade students at the distinguished level examine the structure to the function of living organisms and cells; analyze differences in niches, life cycles and energy/matter conversions of organisms in an ecosystem that contribute to survival; identify substances by their density experimentally; recognize that mass is conserved in physical changes; experimentally determine how the motion of objects are affected by variables;~~	interpret the earth's history using plate tectonics and the geologic evidence of rocks and fossils. ~~Fifth grade students at the above mastery level relate the structure to the function of living organisms and cells; explore differences in niches, life cycles and energy/matter conversions of organisms in an ecosystem that contribute to survival; identify substances by their density experimentally; recognize that mass is conserved in physical changes; experimentally determine how the motion of objects~~	recognize that the earth is made of plates and explore the geologic evidence in rocks and fossils. ~~Fifth grade students at the mastery level identify and explain the function of living organisms, cells, and common energy conversions in cycles of matter; explore differences in niches and life cycles of organisms in an ecosystem that contribute to survival; find density experimentally; recognize that mass is conserved in physical changes; describe how the motion of objects are affected by variables;~~	recognize the earth's crust is divided into plates and that earth's layers can be dated.~~Fifth grade students at the partial mastery level identify the function of living organisms, cells, and common energy conversions in cycles of matter; explain differences in niches and life cycles of organisms in an ecosystem that contribute to survival; calculate density; recognize that mass is conserved in physical changes; identify variables that affect the motion of objects; identify the structure of the earth and characterize the~~	recognize the earth's crust is divided into plates. ~~Fifth grade students at the novice level identify structures of living organisms; identify niches in ecosystems; recognize that mass is conserved in physical changes; identify variables that affect the motion of objects; identify the structure of the earth; recognize the earth's crust is divided into plates; test an electromagnet.~~

~~compare and contrast the characteristics of the earth's layers and characterize changes that occur in the lithosphere and atmosphere; interpret the earth's history using plate tectonics and relative dating; select the appropriate materials to design and quantitatively test electromagnets to evaluate differences in design.~~	~~are affected by variables; contrast the characteristics of the earth's layers and characterize the lithosphere and atmosphere; interpret the earth's history using plate tectonics and relative dating; select the appropriate materials to design, test and diagram the circuit of an electromagnet.~~	~~describe the structure of the earth and characterize the lithosphere and atmosphere; explore the earth's history using plate tectonics and relative dating; select the appropriate materials to design and test an electromagnet.~~	~~lithosphere and atmosphere; recognize the earth's crust is divided into plates and that earth's layers can be dated; build and test an electromagnet.~~	

Objectives	Students will
SC.O.5.2.01	demonstrate an understanding of the interconnections of biological, earth and space, and physical science concepts.
SC.O.5.2.02	identify and explain common energy conversions in cycles of matter including photosynthesis and the carbon dioxide cycle.
SC.O.5.2.03	identify the structures of living organisms and explain their function.
SC.O.5.2.04	observe and identify cells of organisms using a microscope.
SC.O.5.2.05	compare variations of plant growth and reproduction.
SC.O.5.2.06	contrast how the different characteristics of plants and animals help them to survive in different niches and environments including adaptations, natural selection, and extinction.
SC.O.5.2.07	through the use of research and technology, explore the extinction of a species due to environmental conditions.
SC.O.5.2.08	trace and describe the pathways of the sun's energy through producers, consumers and decomposers using food webs and pyramids.
SC.O.5.2.09	explain that the mass of a material is conserved whether it is together, in parts, or in a different state.
SC.O.5.2.10	recognize that elements are composed of only one type of matter.
SC.O.5.2.11	using the periodic table, identify common elements according to their symbols.
SC.O.5.2.12	through experimentation, identify substances by their relative densities (mass/volume=density).
SC.O.5.2.13	analyze diagrams of electrical circuits.
SC.O.5.2.14	measure electricity using voltage and wattage.
SC.O.5.2.15	investigate the properties of an electromagnet by selecting appropriate materials, designing and testing an electromagnet, and evaluating differences in design.
SC.O.5.2.16	describe how the variables of gravity and friction affect the motion of objects.
SC.O.5.2.17	compare and contrast the change in length, tension, or thickness of a vibrating object on the frequency of vibration.
SC.O.5.2.18	describe the layers of the earth and their various features.

SC.O.5.2.19	identify and describe natural landforms and explain how they change and impact weather and climate.
SC.O.5.2.20	use a variety of instruments and sources to collect and display weather data to describe weather patterns.
SC.O.5.2.21	compare and explain the different rates of weathering, erosion and deposition on various materials.
SC.O.5.2.22	analyze a topographical map to make inferences related to elevation and land features.
SC.O.5.2.23	identify resources as being renewable or non-renewable.
SC.O.5.2.24	explore and explain how fossils and geologic features can be used to determine the relative age of rocks and rock layers.
SC.O.5.2.25	recognize that the Earth is made of plates (plate tectonics).

Grade 5	**Science**
Standard 3:	Application of Science
SC.S.5.3	Students will • explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system. • demonstrate an understanding of the interdependence between science and technology. • demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions. • demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Performance Descriptors SC.PD.5.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Fifth grade students at the distinguished level in the application of science: use models to explain parts and analyze processes of systems; debate different points of views from media sources regarding scientific developments and events, and evaluate the influence of technological innovations and careers on science and	Fifth grade students at the above mastery level in the application of science: use models to compare and contrast parts and explain processes of systems; evaluate evidences for different points of view regarding scientific developments and events, and analyze technological innovations and careers that have influenced science	Fifth grade students at the mastery level in the application of science: use models to compare and contrast parts and processes of systems; analyze the reasons for different points of view regarding scientific developments and events, and research and compare technological innovations and careers that have	Fifth grade students at the partial mastery level in the application of science: use models to describe parts of a system or model; determine the point of view from a media source regarding scientific developments, and research and describe a technological innovations or science careers that have	Fifth grade students at the novice level in the application of science: use models to identify the parts of a system; recognize that media sources have a point of view regarding scientific developments, and identify a technological innovation or science career and its influenced

society. ~~Fifth grade students at the distinguished level evaluate the role of parts that contribute to the functioning of a model; identify an innovation with the science that makes it possible; select and use the appropriate technology to collect scientific data; use multiple media sources to evaluate different points of view regarding health, population, resources and environmental practices.~~	and society. ~~Fifth grade students at the above mastery level analyze parts as they contribute to the functioning of a model; match an innovation with the science that makes it possible; identify and use the appropriate technology to collect scientific data; compare media sources to evaluate two different points of view regarding health, population, resources and environmental practices.~~	influenced science.~~Fifth grade students at the mastery level compare the functioning of parts to the functioning of a model; report on a technological innovation; use the appropriate technology to collect scientific data; use two media sources to evaluate points of view regarding health, population, resources or environmental practices.~~	influenced society. ~~Fifth grade students at the partial mastery level explain the function of parts of a model; identify a technological innovation; use technology to collect scientific data; identify the point of view of a media source regarding health, population, resources or environmental practices.~~	society.~~Fifth grade students at the novice level identify the parts of a model; identify a technological innovation; use a technology to collect data; recognize that media sources have a point of view regarding health, population, resources or environmental practices.~~

Objectives	Students will
SC.O.5.3.01	explore the relationship between the parts of a system to the whole system.
SC.O.5.3.02	construct a variety of useful models of an object, event, or process.
SC.O.5.3.03	compare and contrast changes that occur in an object or a system to its original state.
SC.O.5.3.04	compare and contrast the influence that a variation in scale will have on the way an object or system works. (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight characteristics of different-sized model airplanes).
SC.O.5.3.05	research everyday applications and interactions of science and technology.
SC.O.5.3.06	evaluate and critically analyze mass media reports of scientific developments and events.
SC.O.5.3.07	explore the connections between science, technology, society and career opportunities.

Sixth Grade Science Content Standards and Objectives

The Sixth Grade Science objectives demonstrate, differentiate, and apply concepts of the living and designed worlds. Through a spiraling, inquiry-based program of study, all students will demonstrate scientific literacy in the fields of biology, chemistry, physics, and earth and space sciences, using 21st century skills. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated in all activities. Sixth Grade Science reviews changes in the properties of matter, structures, functions and adaptations of organisms, and the structure of the earth's systems. New major concepts introduced at the sixth grade level include motions and forces, ecosystems, diversity of life, energy transformations, plate tectonics, earth's resources and weather. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 6	Science
Standard 1:	Nature of Science
SC.S.6.1	Students will • demonstrate an understanding of the history of science and the evolvement of scientific knowledge. • demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists. • demonstrate an understanding of the characteristics of a scientist. • demonstrate skills of scientific inquiry.

Performance Descriptors SC.PD.6.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Sixth grade students at the distinguished level in the nature of science: evaluate the importance of the research of scientists in diverse cultures throughout history; are creative when designing an investigation, and	Sixth grade students at the above mastery level in the nature of science: explain the sequential relevance of the research of scientists in diverse cultures throughout history; determine the correct tools and apply skepticism when	Sixth grade students at the mastery level in the nature of science: compare and contrast the research of scientists in diverse cultures throughout history; use careful methodology and logical reasoning to	Sixth grade students at the partial mastery level in the nature of science: describe the research of scientists in diverse cultures throughout history; use safe procedures, proper tools, and the scientific	Sixth grade students at the novice level in the nature of science: list scientists of diverse cultures and their inventions or discoveries; follow the scientific method and use safety practices

evaluate data and justify conclusion.~~Sixth grade students at the distinguished level explain the importance of the research of historical and diverse scientists in society and culture; display skepticism, careful methodology, logical reasoning and creativity to conduct scientific investigations; predict, hypothesize, classify independent and dependent variables, organize and interpret experimental data using safe techniques.~~	conducting an investigation, and organize data to determine relationships of the variables within an experiment. ~~Sixth grade students at the above mastery level describe the importance of the research of historical and diverse scientists in society and culture; use skepticism, careful methodology, logical reasoning and creativity to conduct investigations; predict, hypothesize, and classify variables, organize and interpret experimental data using safe techniques.~~	safely conduct an investigation, and support conclusions with observations and organized data. ~~Sixth grade students at the mastery level describe the research of historical and diverse scientists in society and culture; use careful methodology, logical reasoning and creativity to conduct an investigation; and identify variables, organize and interpret experimental data using safe techniques.~~	method when conducting an investigation, and base conclusions on observations and recorded data.~~Sixth grade students at the partial mastery level state the research of an historical or diverse scientist; use a methodology or creativity to conduct an investigation; demonstrate safe investigation techniques; make predictions, identify variables and record data.~~	when conducting an investigation, and base conclusions on observations and data.~~Sixth grade students at the novice level recognize the findings of an historical or diverse scientist; observe measure and record data in conducting an investigation; demonstrate safe investigation techniques; make predictions and record data.~~

Objectives	Students will
SC.O.6.1.01	realize that scientists formulate and test their explanations of nature using observation and experiments.
SC.O.6.1.02	recognize scientific knowledge is subject to modification as new scientific information challenges current explanations.
SC.O.6.1.03	examine the careers and contributions of men and women of diverse cultures to the development of science.
SC.O.6.1.04	compare and contrast the historical significance of scientific discoveries.
SC.O.6.1.05	cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems.
SC.O.6.1.06	formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection.
SC.O.6.1.07	apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe.
SC.O.6.1.08	use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world.
SC.O.6.1.09	demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms.
SC.O.6.1.10	utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables).
SC.O.6.1.11	construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data.
SC.O.6.1.12	use inferential reasoning to make logical conclusions from collected data.

Grade 6	Science
Standard 2:	Content of Science
SC.S.6.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology and the earth and space sciences. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.PD.6.2

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Sixth grade students at the distinguished level in the content of science:	Sixth grade students at the above mastery level in the content of science:	Sixth grade students at the mastery level in the content of science:	Sixth grade students at the partial mastery level in the content of science:	Sixth grade students at the novice level in the content of science:
research and evaluate local and national environmental programs;	research and discuss local environmental topics;	analyze the consequences of human interactions with the environment;	identify ways humans change the environment;	identify ways humans interact with the environment;
use models to compare and contrast growth cycles and features of plant and animal cells;	compare and contrast components of plant and animal cells;	compare plant and animal cell models;	use models to describe structures of plant and animal cells;	use models to identify structures and growth cycles of plant and animal cells;
use the classification of various organisms to infer relatedness;	classify a variety of plants or animals based on their internal and external features;	classify a variety of plants or animals based on their similarities and differences;	sort a variety of plants or animals based on their similarities and differences;	sort plants or animals based on their similarities;
identify substances by experimentally determining their physical and chemical properties;	experimentally determine the physical and chemical properties of substances;	use the physical and chemical properties of substances to identify them;	describe the physical and chemical properties of substances and mixtures;	list the physical and chemical properties of substances and mixtures;
compare and contrast electromagnetic and sound wave properties;	compare electromagnetic and sound wave properties;	characterize electromagnetic and sound waves;	define and describe light and sound waves;	label the parts of a wave;

evaluate movement of heat;	predict and describe heat flow between objects;	describe the flow of heat between objects;	identify three methods of heat transfer;	recognize that heat flows;
compare and contrast series and parallel circuits;	describe the flow of electricity in series and parallel circuits;	diagram series and parallel circuits;	identify series and parallel circuits;	identify parts of electric circuits;
build simple machines and calculate the affect of forces on the motion of an object;	build simple machines and use graphs to explain the affect of forces on the motion of an object;	examine simple machines and use graphs to explain the affect of forces on the motion of an object;	examine simple machines and use graphs determine the affect of forces on the motion of an object;	use simple machines and determine the affect of forces on the motion of an object;
use technology to predict global weather;	gather weather data and use technology to predict local weather;	gather weather data and use technology to investigate local weather;	gather weather data and record weather;	describe and record weather data;
predict effects of changing positions of the earth, moon, and sun, and	use models to explain events associated with positions of the earth, moon, and sun, and	use models to describe events associated with positions of the earth, moon, and sun, and	relate moon phases and seasonal changes to earth, moon, and sun movements, and	indentify the phases of the moon, and
research current evidence in plate tectonics theory.	explain how geologic evidence is used to support the plate tectonics theory.	trace the history of the plate tectonics theory and associate life forms to geologic eras.	describe plate tectonics theory recognize that life forms change with geologic eras.	label plates and recognize that life forms change over time.
~~Sixth grade students at the distinguished level analyze changes in chemical and living cycles of ecosystems; compare different classification systems based on different internal and external traits; use models to compare and contrast features of plant and animal cells; evaluate properties of known substances and mixtures~~	~~Sixth grade students at the above mastery level analyze cycles of ecosystems; compare traits of different classifications of organisms; compare components of plant and animal cell models; compare and contrast properties of substances and mixtures; compare electromagnetic and sound wave properties; predict~~	~~Sixth grade students at the mastery level illustrate cycles of ecosystems; classify organisms using traits; compare plant and animal cell models; classify properties of substances and mixtures; characterize electromagnetic and sound waves; describe the flow of heat between objects; diagram simple electric~~	~~Sixth grade students at the partial mastery level illustrate a cycle in an ecosystem; classify an organism; model plant and animal cells; define properties of substances and mixtures; define light and sound waves; describe the flow of heat between objects; define parts of an electric circuit; define mass and weight; give examples~~	~~Sixth grade students at the novice level Illustrate a cycle in nature; put an organism into a group; use models of plant and animal cells; list properties of substances and mixtures; list light and sound waves terms; recognize that heat flows; list parts of an electric circuit; define weight; define force and motion; draw simple machines; recognize~~

~~and apply properties to identify unknown substances; compare and contrast electromagnetic and sound wave properties; evaluate movement of heat; design simple electric circuits; predict effects of changing positions of the earth, moon, and sun; associate life forms with geologic periods; select technology to predict weather; research current evidence in plate tectonics theory.~~	~~direction of heat flow; compare simple electric circuits; explain events associated with changing positions of the earth, moon, and sun; characterize life forms with geologic eras; predict weather using technology; explain advances in plate tectonics theory.~~	~~circuits; relate gravity and mass; examine how forces effect motion; examine simple machines; describe events associated with positions of the earth, moon, and sun; associate life forms with geologic eras; use technology to investigate weather; trace the history of plate tectonics theory.~~	~~of force and motion; identify simple machines; recognize events occur with changing positions of the earth, moon, and sun; recognize that life forms change with geologic eras; investigate weather; describe plate tectonics theory.~~	~~changing positions of the earth, moon, and sun; recognize that life forms change over time; record weather data; label plates.~~

Objectives	Students will
SC.O.6.2.01	demonstrate the interrelationships among physics, chemistry, biology, earth and environmental science, and astronomy.
SC.O.6.2.02	use pictures to show cyclical processes in nature (e.g., nitrogen cycle, carbon cycle, or water cycle).
SC.O.6.2.03	classify living organisms according to their structure and functions.
SC.O.6.2.04	compare the similarities of internal features of organisms, which can be used to infer relatedness.
SC.O.6.2.05	examine how abiotic and biotic factors affect the interdependence among organisms.
SC.O.6.2.06	construct models of plant and animal cells and compare the basic parts (e.g., cytoplasm, cell wall, cell membrane, nucleus, or chloroplasts).
SC.O.6.2.07	compare growth cycles in different plants (e.g., mosses, ferns, perennials, biennials, woody plants, or herbaceous plants).
SC.O.6.2.08	predict changes in populations of organisms due to limiting environmental factors (e.g., food supply, predators, disease, or habitat).
SC.O.6.2.09	analyze the ecological consequences of human interactions with the environment (e.g., renewable and non-renewable resources).
SC.O.6.2.10	classify and investigate properties and processes (changes) as either physical or chemical.
SC.O.6.2.11	investigate the formation and separation of simple mixtures of matter concluding that matter is composed of tiny particles and that the particles are the same for the same type of matter.
SC.O.6.2.12	use indicators to classify substances as acidic, basic or neutral.
SC.O.6.2.13	using the periodic table, identify the symbols of elements as solids, liquids, and gases; metals or nonmetals.
SC.O.6.2.14	describe the composition and properties of matter (e.g., particles, malleability, melting point, density, inertia, or specific heat).
SC.O.6.2.15	investigate the properties of the electromagnetic spectrum (e.g., wavelengths, frequencies, visible light); relate wavelengths and/or frequencies to position on the electromagnetic spectrum (e.g., colors, x-ray).
SC.O.6.2.16	recognize that an object's color is based upon the absorption and reflection of light waves.

SC.O.6.2.17	describe light and sound in terms of longitudinal or transverse waves.
SC.O.6.2.18	describe the flow of heat between objects (e.g., hot air rises, or absorption and release of heat by metals).
SC.O.6.2.19	diagram simple parallel and series circuits (e.g., bulbs, battery, wires, or switch).
SC.O.6.2.20	correlate the relationship of mass to gravitational force (e.g., larger the mass the larger the gravitational force, or the closer the objects the stronger the force).
SC.O.6.2.21	examine simple machines and the forces involved.
SC.O.6.2.22	apply the effects of balanced and unbalanced forces on motion of objects.
SC.O.6.2.23	explain motion in terms of frames of reference and analyze graphs depicting motion and predicted future motion.
SC.O.6.2.24	monitor major atmospheric events using a variety of resources including technology.
SC.O.6.2.25	compare and contrast continental drift hypothesis to the plate tectonic theory.
SC.O.6.2.26	associate plant and animal life forms with specific geologic time periods.
SC.O.6.2.27	recognize the phases of the moon.
SC.O.6.2.28	investigate models of earth-moon-sun relationships (e.g., gravity, time, or tides).
SC.O.6.2.29	compare the earth's tilt and revolution to the seasonal changes.

Grade 6	Science
Standard 3:	Application of Science
SC.S.6.3	Students will • explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system. • demonstrate an understanding of the interdependence between science and technology. • demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions. • demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Performance Descriptors SC.PD.6.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Sixth grade students at the distinguished level in the application of science: use models to explain parts and analyze processes of systems; debate different points of views from media sources	Sixth grade students at the above mastery level in the application of science: use models to compare and contrast parts and explain processes of systems; evaluate evidences for different points of view	Sixth grade students at the mastery level in the application of science: use models to compare and contrast parts and processes of systems; analyze the reasons for different points of view	Sixth grade students at the partial mastery level in the application of science: use models to describe parts of a system or model; determine the point of view from a media source	Sixth grade students at the novice level in the application of science: use models to identify the parts of a system; recognize that media sources have a point of

regarding scientific developments and events, and evaluate the influence of technological innovations and careers on science and society. ~~Sixth grade students at the distinguished level evaluate the role of parts that contribute to the functioning of the system and/or model; identify innovations with the science that makes them possible; select and use the appropriate technology to collect scientific data; use multiple media sources to evaluate different points of view regarding health, population, resources and environmental practices.~~	regarding scientific developments and events, and analyze technological innovations and careers that have influenced science and society. ~~Sixth grade students at the above mastery level analyze parts as they contribute to the functioning of the system or model; match innovations with the science that makes them possible; identify and use the appropriate technology to collect scientific data; use multiple media sources to evaluate different points of view regarding health, population, resources and environmental practices.~~	regarding scientific developments and events, and research and compare technological innovations and careers that have influenced science.~~Sixth grade students at the mastery level compare the functioning of parts to the functioning of the system or model; match innovations with the science that makes them possible; use the appropriate technology to collect scientific data; use media sources to evaluate different points of view regarding health, population, resources or environmental practices.~~	regarding scientific developments, and research and describe a technological innovations or science careers that have influenced society. ~~Sixth grade students at the partial mastery level explain the function of parts of a system or model; match an innovation with the science that makes it possible; use the appropriate technology to collect scientific data; determine the point of view of a media source regarding health, population, resources or environmental practices.~~	view regarding scientific developments, and identify a technological innovation or science career and its influenced society.~~Sixth grade students at the novice level identify the parts of a system or model; identify a technological innovation; use technology to collect data; recognize that media sources have a point of view regarding health, population, resources or environmental practices.~~

Objectives	Students will
SC.O.6.3.01	explore the relationship between the parts of a system to the whole system.
SC.O.6.3.02	construct a variety of useful models of an object, event, or process.
SC.O.6.3.03	compare and contrast changes that occur in an object or a system to its original state.
SC.O.6.3.04	compare and contrast the influence that a variation in scale will have on the way an object or system works. (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight characteristics of different-sized model airplanes).
SC.O.6.3.05	research everyday applications and interactions of science and technology.
SC.O.6.3.06	evaluate and critically analyze mass media reports of scientific developments and events.

Seventh Grade Science Content Standards and Objectives

The Seventh Grade Science objectives evaluate, interpret, and predict conditions and phenomena of the living and designed worlds. Through a spiraling, inquiry-based program of study, all students will demonstrate scientific literacy and use of 21st century skills in the fields of biology, chemistry, physics and earth/environmental science and astronomy. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research laboratory skills. Safety instruction is integrated into all activities. Seventh Grade Science reviews motions and forces, ecosystems, diversity of life, energy transformations, plate tectonics, earth's resources and weather. Major concepts expanded at the seventh grade level include elements, mixtures, and compounds, populations/ecosystems, conservation of matter and energy and earth's history. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 7	Science
Standard:1	Nature of Science
SC.S.7.1	Students will • demonstrate an understanding of the history of science and the evolvement of scientific knowledge. • demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists. • demonstrate an understanding of the characteristics of a scientist. • demonstrate skills of scientific inquiry.

Performance Descriptors SC.PD.7.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Seventh grade students at the distinguished level in the nature of science: evaluate the importance of the research of scientists in diverse cultures throughout history; are creative when designing an investigation, and	Seventh grade students at the above mastery level in the nature of science: explain the sequential relevance of the research of scientists in diverse cultures throughout history; determine the correct tools and apply skepticism when	Seventh grade students at the mastery level in the nature of science: compare and contrast the research of scientists in diverse cultures throughout history; use careful methodology and logical reasoning to	Seventh grade students at the partial mastery level in the nature of science: describe the research of scientists in diverse cultures throughout history; use safe procedures, proper tools, and the scientific	Seventh grade students at the novice level in the nature of science: list scientists of diverse cultures and their inventions or discoveries; follow the scientific method and use safety practices

evaluate data and justify conclusion.~~Seventh grade students at distinguished level assess the importance of the research of historical and diverse scientists in society and culture; model skepticism, careful methodology, logical reasoning and creativity to conduct scientific investigations; predict, hypothesize, quantify independent and dependent variables, organize, interpret experimental data and state a conclusion demonstrating safe techniques.~~	conducting an investigation, and organize data to determine relationships of the variables within an experiment. ~~Seventh grade students at the above mastery level explain the importance of the research of historical and diverse scientists in society and culture; display skepticism, careful methodology, logical reasoning and creativity to conduct scientific investigations; predict, hypothesize, identify independent and dependent variables, organize and interpret experimental data demonstrating safe techniques.~~	safely conduct an investigation, and support conclusions with observations and organized data. ~~Seventh grade students at the mastery level identify the importance of the research of historical and diverse scientists in society and culture; use skepticism, careful methodology, logical reasoning and creativity to conduct investigations; predict, hypothesize, identify variables, organize and interpret experimental data using safe techniques.~~	method when conducting an investigation, and base conclusions on observations and recorded data.~~Seventh grade students at the partial mastery level recognize the research of historical and diverse scientists in society and culture; use skepticism, careful methodology, logical reasoning or creativity to conduct an investigation; demonstrate safe investigation techniques; make predictions and organize data.~~	when conducting an investigation, and base conclusions on observations and data.~~Seventh grade students at novice level state the research of an historical or diverse scientist; use a methodology to conduct an investigation; demonstrate safe investigation techniques; make predictions and record data.~~

Objectives	Students will
SC.O.7.1.01	realize that scientists formulate and test their explanations of nature using observation and experiments.
SC.O.7.1.02	recognize scientific knowledge is subject to modification as new scientific information challenges current explanations.
SC.O.7.1.03	examine the careers and contributions of men and women of diverse cultures to the development of science.
SC.O.7.1.04	compare and contrast the historical significance of scientific discoveries.
SC.O.7.1.05	cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems.
SC.O.7.1.06	formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection.
SC.O.7.1.07	apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe.
SC.O.7.1.08	use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world.
SC.O.7.1.09	demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms.
SC.O.7.1.10	utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables).

SC.O.7.1.11	construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data.
SC.O.7.1.12	use inferential reasoning to make logical conclusions from collected data.

Grade 7	Science			
Standard: 2	Content of Science			
SC.S.7.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy. • apply knowledge, understanding and skills of the science subject matter/concepts to daily life experiences.			
Performance Descriptors SC.PD.7.2				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Seventh grade students at the distinguished level in the content of science: design a model to demonstrate functions, systems, or cycles of organisms; debate decisions to change ecosystems when considering the effects on and the interactions, adaptations, and survival of organisms. perform experiments to identify substances and explain and chemical reactions;	Seventh grade students at the above mastery level in the content of science: critique models and use them to assess the structures, functions and cycles of organisms and systems; research the effects of changing ecosystems and the interactions, adaptations, and survival of organisms. perform experiments to determine properties of substances and explain and chemical reactions;	Seventh grade students at the mastery level in the content of science: construct models to explain the structures, functions and cycles of organisms and systems; determine the relationships between changing ecosystems and the interactions, adaptations, and survival of organisms. compare phase changes and properties of substances and demonstrate and describe chemical reactions;	Seventh grade students at the partial mastery level in the content of science: compare models and use them to describe the structures, functions, and cycles of organisms and systems; describe the interactions or organisms within variety of ecosystems; identify phase changes and properties of substances and describe chemical reactions;	Seventh grade students at the novice level in the content of science: use a model and to label a structures, functions, and cycles of organisms and systems; identify organisms within a variety of ecosystems; list the properties of substances and describe phase changes and chemical reactions of matter;

design a device that uses an energy and assess its effects on objects or its applications in society; create maps and use them to explain processes that have occurred on Earth's surface. ~~Seventh grade students at distinguished level analyze the effects of diseases on human systems, organs and cells; create dichotomous keys to group similar but distinct organisms based on traits; mathematically model the effects of changing cycles in ecosystems; compare and contrast life cycles of plants and their genetic adaptations; interpret a phase change diagram; classify substances as acids, bases, and salts to predict the products of neutralization reactions; predict the behavior of light waves through media change; compare alternating and direct current; evaluate the mechanical advantage of simple machines; propose changes in the force of gravity on other planets; predict weather and~~	construct devices and explain how they change energy from one form to another; compare current and historical maps and use them to explain changes in that have occurred in a local area. ~~Seventh grade students at the above mastery level analyze the structure, function of human systems, organs and cells; create dichotomous keys to group organisms; analyze the effects of changing cycles in ecosystems; compare life cycles of plants and their adaptations; draw a phase change diagram to show particle movement; classify substances as acids, bases, and salts to write neutralization word reactions; explain the behavior of light waves; explain lens technology; compare alternating and direct current; compare and contrast mechanical advantage of simple machines; research changes in the force of gravity on other planets; interpret weather and patterns of ocean~~	investigate energy, its effect on matter, and its applications in society; interpret maps and use them to explain processes that have occurred on Earth's surface. ~~Seventh grade students at the mastery level describe the function of human systems, organs and cells; create simple keys to group organisms; analyze chemical and living cycles in ecosystems; illustrate life cycles of plants; describe particle movement and energy during phase changes; identify elements and compounds and place them in word equations; examine the behavior of light waves; interpret effect of medium on waves; characterize alternating and direct current; investigate energy transformation; explain mechanical advantage of simple machines; characterize gravity as a force; explain weather and patterns of ocean circulation; interpret and model topography; describe rock formation and~~	identify energy sources and its applications in society; use maps to explain processes that have occurred on Earth's surface. ~~Seventh grade students at the partial mastery level describe the effects diseases have on human systems, organs and cells; compare groups of organisms with a key; identify the role of cycles in ecosystems; illustrate life cycles of plants; illustrate phases of matter during phase changes; write word equations; examine the behavior of waves; recognize that waves are affected by a medium; define alternating and direct current; recognize that simple machines change force; identify gravity as a force; diagram weather and patterns of ocean circulation; group rocks with similar characteristics; model and identify topographic features; sketch the life cycle of a star; associate climates with latitudes.~~	identify energy sources and its applications in society; use maps to identify features on Earth's surface. ~~Seventh grade students at the novice level identify diseases effecting humans; compare groups of organisms; identify cycles in ecosystems; draw a plant life cycle; illustrate phases of matter; identify elements and compounds; recognize light and sound as waves; observe the interaction of waves and a medium; define current; list types of simple machines; define a force; observe weather and patterns of ocean circulation; describe types of rocks; model topography; recognize that stars have a life cycle; recognize latitude affects climate.~~

~~patterns of ocean circulation; relate rock classification and formation to topography; predict the life cycle of a star; predict climate based on latitude.~~	~~circulation; relate rock formation to topography and classify rocks; investigate life cycles of a star; contrast climates at various latitudes.~~	~~classify rocks; explain life cycles of a star; relate latitude to climate.~~		

Objectives	Students will
SC.O.7.2.01	demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy.
SC.O.7.2.02	identify and describe disease causing organisms (such as bacteria, viruses, protozoa, fungi) and the diseases they cause.
SC.O.7.2.03	explain how skeletal, muscular, and integumentary systems work together in the human body.
SC.O.7.2.04	compare the level of organization of cells, tissues and organs in living things.
SC.O.7.2.05	construct simple keys to differentiate among living things with similar characteristics.
SC.O.7.2.06	use pictures to show cyclical processes in nature (e.g., water cycle, nitrogen cycle, or carbon cycle).
SC.O.7.2.07	evaluate how the different adaptations and life cycles of plants and animals help them to survive in different niches and environments (e.g., inherited and acquired adaptations).
SC.O.7.2.08	analyze how changes in the environment have led to reproductive adaptations through natural selection.
SC.O.7.2.09	explain how an organism's behavior response is a combination of heredity and the environment.
SC.O.7.2.10	analyze the differences in the growth, development and reproduction in flowering and non-flowering plants.
SC.O.7.2.11	predict the trends of interdependent populations if one of the limiting factors is changed.
SC.O.7.2.12	evaluate the consequences of the introduction of chemicals into the ecosystem (e.g., environmental consequences, human health risks, or mutations).
SC.O.7.2.13	compare differences among elements, compounds, homogeneous and heterogeneous mixtures.
SC.O.7.2.14	examine the differences in types of solutions (e.g., solutes and solvents, relative concentrations, conductivity, pH).
SC.O.7.2.15	examine chemical reactions involving acids and bases by monitoring color changes of indicator(s) and identifying the salt formed in the neutralization reaction.
SC.O.7.2.16	write word equations to describe chemical reactions.
SC.O.7.2.17	describe the movement of individual particles and verify the conservation of matter during the phase changes (e.g., melting, boiling, or freezing).
SC.O.7.2.18	identify the characteristics of sound waves and describe how sound is perceived by the ear.
SC.O.7.2.19	define the absorption and reflection of light as translucent, opaque and transparent.
SC.O.7.2.20	interpret and illustrate changes in waves as they encounter various mediums (e.g., mirrors, or lenses).
SC.O.7.2.21	Investigate absorption and reflection of light by an object.
SC.O.7.2.22	characterize series and parallel circuits; AC and DC currents.
SC.O.7.2.23	explain conservation of matter and energy and investigate the different forms of energy (e.g., mechanical, potential, kinetic, or

	gravitational).
SC.O.7.2.24	perform experiments with simple machines to demonstrate the relationship between forces and distance; use vectors to represent motion.
SC.O.7.2.25	explain the effect of gravity on falling objects (e.g., $g=9.8m/s^2$, object dropped on earth and on moon).
SC.O.7.2.26	describe and compare the causes of tides, surfs and currents.
SC.O.7.2.27	examine the effects of the sun's energy on oceans and weather (e.g., air masses, or convection currents).
SC.O.7.2.28	interpret GIS maps and create and interpret topographical maps.
SC.O.7.2.29	describe rock formations (e.g., rock cycle).
SC.O.7.2.30	classify rocks (e.g., crystal/particle size, or mineral composition and uses).
SC.O.7.2.31	determine the relevant age of rock layers using index fossils and the law of superposition.
SC.O.7.2.32	explain how changing latitude affects climate.
SC.O.7.2.33	trace the life cycle of a star.

Grade 7	**Science**
Standard:3	Application of Science
SC.S.7.3	Students will • explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system. • demonstrate an understanding of the interdependence between science and technology. • demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions. • demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Performance Descriptors SC.PD.7.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Seventh grade students at the distinguished level in the application of science: use models to explain parts and analyze processes of systems; debate different points of views from media sources regarding scientific developments and events,	Seventh grade students at the above mastery level in the application of science: use models to compare and contrast parts and explain processes of systems; evaluate evidences for different points of view regarding scientific developments and events,	Seventh grade students at the mastery level in the application of science: use models to compare and contrast parts and processes of systems; analyze the reasons for different points of view regarding scientific developments and events,	Seventh grade students at the partial mastery level in the application of science: use models to describe parts of a system or model; determine the point of view from a media source regarding scientific developments, and	Seventh grade students at the novice level in the application of science: use models to identify the parts of a system; recognize that media sources have a point of view regarding scientific developments, and

and evaluate the influence of technological innovations and careers on science and society. ~~Seventh grade students at the distinguished level predict the change in a system and/or model as a result of changing a part; identify an innovation and the science that makes it possible; evaluate the appropriateness of selected technology to collect scientific data; evaluate the persuasiveness of points of view regarding health, population, resources and environmental practices presented by various media sources.~~	and analyze technological innovations and careers that have influenced science and society. ~~Seventh grade students at the above mastery level evaluate the role of parts that contribute to the functioning of the system; analyze changes in systems and models; identify innovations with the science that makes them possible; select and use the appropriate technology to collect scientific data; use multiple media sources to evaluate different points of view regarding health, population, resources and environmental practices.~~	and research and compare technological innovations and careers that have influenced science.~~Seventh grade students at the mastery level analyze parts as they contribute to the functioning of the system; analyze changes in systems and models; match an innovation with the science that makes it possible; identify and use the appropriate technology to collect scientific data; use multiple media sources to evaluate different points of view regarding health, population, resources and environmental practices.~~	research and describe a technological innovations or science careers that have influenced society. ~~Seventh grade students at the partial mastery level compare the functioning of parts to the functioning of the system; match an innovation with the science that makes it possible; use the appropriate technology to collect scientific data; use media sources to evaluate different points of view regarding health, population, resources or environmental practices.~~	identify a technological innovation or science career and its influenced society.~~Seventh grade students at novice level identify parts of a system; identify a scientific/ technological innovation; use technology to collect scientific data; use media sources to identify a point of view regarding health, population, resources or environmental practices.~~

Objectives	Students will
SC.O.7.3.01	explore the relationship between the parts of a system to the whole system.
SC.O.7.3.02	construct a variety of useful models of an object, event, or process.
SC.O.7.3.03	compare and contrast changes that occur in an object or a system to its original state.
SC.O.7.3.04	compare and contrast the influence that a variation in scale will have on the way an object or system works. (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight characteristics of different-sized model airplanes).
SC.O.7.3.05	research everyday applications and interactions of science and technology.
SC.O.7.3.06	evaluate and critically analyze mass media reports of scientific developments and events.
SC.O.7.3.07	explore the connections between science, technology, society and career opportunities.

Eighth Grade Science Content Standards and Objectives

The Eighth Grade Science objectives analyze, quantify, and explain conditions and phenomena of the living and designed worlds. Through a spiraling, inquiry-based program of study, all students will demonstrate scientific literacy and use of 21st century skills in the fields of biology, chemistry, physics and earth/environmental science and astronomy. The subject matter is delivered through a coordinated, integrated approach with an emphasis on the development of the major science themes of systems, changes and models. Students will engage in active inquiries, investigations and hands-on activities for a minimum of 50% of the instructional time to develop conceptual understanding and research/laboratory skills. Safety instruction is integrated into all activities. Eighth Grade Science reviews elements, mixtures, and compounds, populations/ecosystems, conservation of matter and energy and earth's history. Major concepts introduced at the eighth grade level include reproduction, genetics, behavior, chemical reactions and environmental concerns. The West Virginia Standards for 21st Century Learning include the following components: 21st Century Content Standards and Objectives and 21st Century Learning Skills and Technology Tools. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

Grade 8	**Science**
Standard:1	Nature of Science
SC.S.8.1	Students will • demonstrate an understanding of history and nature of science as a human endeavor encompassing the contributions of diverse cultures and scientists. • demonstrate the ability to use the inquiry process to solve problems.

Performance Descriptors SC.PD.8.1				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Eighth grade students at the distinguished level in the nature of science: following the scientific method design a scientifically based project that will include scientific explanations of real world issues, and present the project, and using the scientific method design and evaluate	Eighth grade students at the above mastery level in the nature of science: following the scientific method investigate scientific explanations of real world issues, and then construct and analyze a scientific project based on these investigations, and using the scientific method design and analyze systems	Eighth grade students at the mastery level in the nature of science: following the scientific method formulate scientific explanations of real world issues and create and analyze a scientific project, and using the scientific method analyze and interpret	Eighth grade students at the partial mastery level in the nature of science: following the scientific method summarize scientific explanations of real world issues and create and discuss a scientific project, and using the scientific method analyze and label systems	Eighth grade students at the novice level in the nature of science: following the scientific method identify scientific explanations of real world issues and discuss a scientific project, and using the scientific method analyze and identify

systems and models. ~~Eighth grade students at the distinguished level assess the importance of scientific innovation and recognize the role of these innovations in advancing societal, cultural and economic issues; use scientific methodology to conduct, communicate and revise experiments utilizing safe procedures and appropriate technology; repeat experiments to verify results; draw conclusions from data sources and models.~~	and models. ~~Eighth grade students at the above mastery level understand the importance of scientific innovation and recognize the role of these innovations in advancing societal, cultural and economic issues; use scientific methodology to conduct and communicate experiments utilizing safe procedures and appropriate technology; repeat experiments to verify results; draw conclusions from data sources and models.~~	systems and models. ~~Eighth grade students at the mastery level recognize the importance of scientific innovation and report the role of these innovations in advancing societal, cultural and economic issues; use scientific methodology to conduct and communicate experiments utilizing safe procedures and appropriate technology; repeat experiments to verify results; draw conclusions from a data source or model.~~	and models. ~~Eighth grade students at the partial mastery level describe the importance of scientific innovation and report the role of these innovations in advancing societal, cultural or economic issues; use a methodology to conduct and communicate experiments utilizing safe procedures and appropriate technology; match an appropriate conclusion with experimental data.~~	systems and models. ~~Eighth grade students at the novice level recognize the importance of a scientific innovation and report the role of this innovation in advancing societal, cultural or economic issues; conduct experiments utilizing safe procedures and appropriate technology; restate observations as the conclusion.~~

Objectives	Students will
SC.O.8.1.01	formulate scientific explanations based on historical observations and experimental evidence, accounting for variability in experimental results.
SC.O.8.1.02	demonstrate how a testable methodology is employed to seek solutions for personal and societal issues. (e.g., "scientific method").
SC.O.8.1.03	relate societal, cultural and economic issues to key scientific innovations.
SC.O.8.1.04	conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiry (e.g., established research protocol, accurate record keeping, replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic).
SC.O.8.1.05	implement safe procedures and practices when manipulating equipment, materials, organisms, and models.
SC.O.8.1.06	use appropriate technology solutions within a problem solving setting to measure and collect data; interpret data; analyze and/or report data; interact with simulations; conduct research; and present and communicate conclusions.
SC.O.8.1.07	design, conduct, evaluate and revise experiments (e.g., compose a question to be investigated, design a controlled investigation that produces numeric data, evaluate the data in the context of scientific laws and principles, construct a conclusion based on findings, propose revisions to investigations based on manipulation of variables and/or analysis of error, or communicate and defend the results and conclusions).
SC.O.8.1.08	draw conclusions from a variety of data sources to analyze and interpret systems and models (e.g., use graphs and equations to measure and apply variables such as rate and scale, evaluate changes in trends and cycles, predict the influence of external variances such as potential sources of error, or interpret maps).

Grade 8	Science
Standard:2	Content of Science
SC.S.8.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy. • apply knowledge, understanding and skills of science subject matter/concepts to daily life experiences.

Performance Descriptors SC.PD.8.2				
Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Eighth grade students at the distinguished level in the content of science: analyze the accuracy of models that describe the cycles in nature, structures and functions of organisms, their interactions with one another, and the movements of objects in the solar system; indentify an unknown by experimentally determining its physical and chemical properties; debate different energy sources and evaluate their effects on objects and applications in society over time; predict the short term and long term effects of a variety of geological and	Eighth grade students at the above mastery level in the content of science: construct and use models to explain the cycles in nature, structures and functions of organisms, their interactions with one another, and the movements of objects in the solar system; predict the classification of matter based on valence electron configuration; investigate and construct models of energy sources and their effects on objects and applications in society; interpret maps to determine evidence of geological and meteorological processes,	Eighth grade students at the mastery level in the content of science: construct and use models to describe the cycles in nature, structures and functions of organisms, their interactions with one another, and the movements of objects in the solar system; use physical and chemical properties to identify matter; examine and explain energy sources, their effects on objects, and applications in society; describe the causes and effects of geological and meteorological processes,	Eighth grade students at the partial mastery level in the content of science: use models to describe the cycles in nature, structures and functions of organisms, their interactions with one another, and the movements of objects in the solar system; identify physical and chemical properties; define energy sources and match their effects on objects and applications in society; describe geological and meteorological processes and explain their effects on	Eighth grade students at the novice level in the content of science: label models that include cycles in nature, structures of organisms, and objects in the solar system; recognize the physical and chemical properties are used to identify matter; name energy sources and list their effects on objects and applications in society; identify the results of geological processes and describe meteorological

meteorological processes, and debate the societal concerns related to the use of earth's resources and space exploration.~~Eighth grade students at the distinguished level evaluate the structure of cells of varying functions for each human organ system; given an environment predict characteristics of organisms; defend placement of organisms in dichotomous keys; analyze the effect of removing producers, consumers or decomposers from an ecosystem; given the number of valence electrons, locate elements on periodic table to draw the Bohr model; predict product formation for chemical reactions by writing word equations; predict and graph diffusion rate and temperature change; compare and contrast sources of energy; interpret wave, motion, work, power, and pressure calculations; classify types of energy transformation; predict Doppler effect of a moving	and evaluate the use of earth's resources and benefits of space exploration.~~Eighth grade students at the above mastery level analyze the types of cells in organ systems; design an organism suited to an environment; construct dichotomous keys to discriminate among similar organisms; recognize the role of producers, consumers and decomposers; predict and construct atomic models based on the element's placement on the periodic table; identify reaction types and predict products for word equations; measure variations in diffusion rate; compare two sources of energy; calculate and graph properties of waves, motion, work, power, and pressure; explain how energy is conserved in transformations; relate Doppler shift to sound; provide examples of Newton's Laws of Motion; explain the presence of geologic events at plate	and research and explain societal concerns related to the use of earth's resources and space exploration.~~Eighth grade students at the mastery level describe the importance of cell type in human systems; analyze how genetics, behavior and environment interact; construct simple dichotomous keys; trace the flow of energy in food webs; relate atomic structure and properties to location on the periodic table; write word equations and classify type; evaluate variations in diffusion rates and examine the effect of changing temperature; examine sources of energy; calculate and/or graph properties of waves, motion, work, power, and pressure; relate conservation of energy to transformations; recognize Doppler shift to sound; explain Newton's Laws of Motion; relate plate	the Earth's surface, and research and describe the societal concerns related to the use of earth's resources and space exploration.~~Eighth grade students at the partial mastery level identify cell types in human systems; recognize genetics, behavior and environment interact; use dichotomous keys; locate energy changes in a food web; construct Bohr models; classify types of chemical reactions; recognize gases diffuse at different rates and are effected by temperature changes; relate conservation of energy to either matter or energy transformations; list Newton's Laws of Motion; locate geologic events at plate boundaries; list forces that shape the Earth's surface; describe motion of solar system objects; relate climates to proximity to oceans.~~	events, and list some uses for the earth's resources and benefits and expenses of space exploration.~~Eighth grade students at the novice level recognize different cell types exist in human systems; recognize that genetics and behavior interact; group organisms using similar traits; locate an energy change in a food web; define subatomic particles; list five types of chemical reactions; recognize gases diffuse; recognize energy transformations; list two of Newton's Laws of Motion; recognize that geologic events occur at plate boundaries; list some forces that shape the Earth's surface; describe solar system objects; relate weather conditions to proximity to oceans.~~

~~object; apply Newton's Laws of Motion; predict geologic events at plate boundaries; predict the effects of forces on existing geologic structures; compare and contrast the origin of a solar system object to its motion; predict climatic change caused by changing ocean conditions.~~	~~boundaries; identify forces affecting geologic structures; relate the origin of a solar system object to its motion; provide examples of climates affected by oceans.~~	~~tectonics to geologic events; describe forces which shape the Earth's surface; describe motion and the origin of solar system objects; explain the relationships among weather, climate and oceans.~~		

Objectives	Students will
SC.O.8.2.01	demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy.
SC.O.8.2.02	examine and describe the structures and functions of cell organelles.
SC.O.8.2.03	explain how the circulatory, respiratory and reproductive systems work together in the human body.
SC.O.8.2.04	compare the variations in cells, tissues and organs of the circulatory, respiratory and reproductive systems of different organisms.
SC.O.8.2.05	discuss how living cells obtain the essentials of life through chemical reactions of fermentation, respiration and photosynthesis.
SC.O.8.2.06	analyze how behaviors of organisms lead to species continuity (e.g., reproductive/mating behaviors, or seed dispersal).
SC.O.8.2.07	demonstrate the basic principles of genetics; introduce Mendel's law, monohybrid crosses, production of body and sex cells (mitosis/meiosis), genes, chromosomes, and inherited traits.
SC.O.8.2.08	compare patterns of human development to other vertebrates.
SC.O.8.2.09	organize groups of unknown organisms based on observable characteristics (e.g., create dichotomous keys).
SC.O.8.2.10	trace matter and energy flow in a food web as it flows from sunlight to producers and consumers, design an environment in which the chemical and energy needs for the growth, reproduction and development of plants are met (e.g., food pyramids, decomposition).
SC.O.8.2.11	use the periodic table to locate and classify elements as metallic, non-metallic or metalloid.
SC.O.8.2.12	reconstruct development models of the atom (e.g., Crookes, Thompson, Becquerel, Rutherford, or Bohr).
SC.O.8.2.13	calculate the number of protons, neutrons, and electrons and use the information to construct a Bohr model of the atom.
SC.O.8.2.14	classify elements into their families based upon their valence electrons.
SC.O.8.2.15	evaluate the variations in diffusion rates and examine the effect of changing temperatures.
SC.O.8.2.16	conduct and classify chemical reactions by reaction type (e.g., synthesis, decomposition, single replacement or double replacement); energy type (e.g., endothermic and exothermic); and write word equations for the chemical reactions.
SC.O.8.2.17	identify and describe factors that affect chemical reaction rates, including catalysts, temperature changes, light energies and particle size.
SC.O.8.2.18	examine the various sources of energy (e.g., fossil fuels, wind, solar, geothermal, nuclear, biomass).
SC.O.8.2.19	explain the Doppler effect (e.g., sound).

SC.O.8.2.20	quantitatively represent wavelength, frequency and velocity (e.g., v=λf).
SC.O.8.2.21	relate the conservation of energy theory to energy transformations (e.g., electrical/heat, or mechanical/heat).
SC.O.8.2.22	quantitatively represent work, power, pressure (e.g., Work=Force x distance, Power=Work/time, or pressure=force/area) from collected data.
SC.O.8.2.23	graph and interpret the relationships of distance versus time, speed versus time, and acceleration versus time.
SC.O.8.2.24	describe Newton's Laws of Motion; identify examples, illustrate qualitatively and quantitatively drawing vector examples.
SC.O.8.2.25	illustrate and calculate the mechanical advantage of simple machines.
SC.O.8.2.26	research and draw conclusions related to the quality and quantity of surface and ground water.
SC.O.8.2.27	identify and explain the principle forces of plate tectonics and related geological events (e.g., earthquakes, volcanoes, or landforms).
SC.O.8.2.28	determine the impact of oceans on weather and climate; relate global patterns of atmospheric movement on local weather.
SC.O.8.2.29	analyze the forces of tectonics, weathering and erosion that have shaped the earth's surface.
SC.O.8.2.30	model processes of soil formation and suggest methods of soil preservation and conservation.
SC.O.8.2.31	research and recognize the societal concerns of exploration and colonization of space.
SC.O.8.2.32	explain phenomena associated with motions in sun-earth-moon system (e.g., eclipses, tides, or seasons).
SC.O.8.2.33	describe the origin and orbits of comets, asteroids, and meteoroids.

Grade 8	**Science**
Standard:3	Application of Science
SC.S.8.3	Students will • demonstrate the ability to use inquiry process to explore systems, models, and changes. • demonstrate an understanding of the interdependence between science and technology. • demonstrate an understanding of the utilization of technology to gather data and communicate designs, results and conclusions. • demonstrate an understanding of personal and societal benefits of science, and an understanding of public policy decisions as related to health, population, resource and environmental issues.

Performance Descriptors SC.PD.8.3

Distinguished	Above Mastery	Mastery	Partial Mastery	Novice
Eighth grade students at the distinguished level the application of science: research a current real world issue then design an original solution to the problem, and	Eighth grade students at the above mastery level the application of science: research current real world issues then debate possible solutions, and	Eighth grade students at the mastery level the application of science: research a current real world issue and create in a multimedia presentation in order to defend a solution to the problem, and	Eighth grade students at the partial mastery level the application of science: research current real world issues and their possible solutions, and	Eighth grade students at the novice level the application of science: list solutions to current real world issues and identify ways the solutions can be implemented, and

research job opportunities in science related fields and justify the required qualifications. ~~Eighth grade students at the distinguished level construct, test and analyze data to explore systems, models, and changes across science disciplines; analyze technological innovations and the science that makes them possible; evaluate the personal and societal benefits of a scientific discovery; assess the impacts of a public policy decision regarding health, population resources or environmental issues.~~	interview persons in science related fields and investigate academic qualifications needed for these jobs. ~~Eighth grade students at the above mastery level test, record and analyze data to explore systems, models, and changes; identify technological innovations and the science that makes them possible; explain positive outcomes and unintended consequences of a scientific discovery; explain the impact of a public policy decision regarding health, population resources or environmental issues.~~	explore job opportunities and qualifications needed in science related fields. ~~Eighth grade students at the mastery level test and record data to explore systems, models, and changes; identify a technological innovation and the science that makes it possible; identify positive outcomes and unintended consequences of a scientific discovery; identify the impact of a public policy decision regarding health, population resources or environmental issues.~~	describe job opportunities in science related fields and identify the required qualifications. ~~Eighth grade students at the partial mastery level observe and record data to explore systems, models, or changes; match a technological innovation with the science that makes it possible; identify a positive outcome and an unintended consequence of a scientific discovery; identify a public policy decision impacting health, population resources or environmental issues.~~	match the qualifications needed for job opportunities in science related fields. ~~Eighth grade students at the novice level observe and record data that relates to systems, models, or changes; identify a technological innovation; identify a positive outcome and an unintended consequence of a scientific discovery; read and restate a public policy decision impacting health, population resources or environmental issues.~~

Objectives	Students will
SC.O.8.3.01	synthesize concepts across various science disciplines to better understand the natural world (e.g., form and function, systems, or change over time).
SC.O.8.3.02	investigate, compare and design scientific and technological solutions to personal and societal problems.
SC.O.8.3.03	communicate experimental designs, results and conclusions using advanced technology tools.
SC.O.8.3.04	collaborate to present research on current environmental and technological issues to predict possible solutions.
SC.O.8.3.05	explore occupational opportunities in science, engineering and technology and evaluate the required academic preparation.
SC.O.8.3.06	given a current science-technology-societal issue, construct and defend potential solutions.

FISCAL NOTE FOR PROPOSED RULES

Rule Title: **W. Va. 126CSSR44C, Policy 2520.3 Science K-8 Content Standards and Objectives for West Virginia Schools**

Type of Rule: **X** Legislative ☐ Interpretive ☐ Procedural

Agency: West Virginia Department of Education

Address: Capitol Building 6, Room 608

1900 Kanawha Boulevard, East

Charleston, WV 25305

Phone Number: 304.558.5325 Email: cljwilli@access.k12.wv.us

Fiscal Note Summary

Summarize in a clear and concise manner what impact this measure will have on costs and revenues of state government.

Fiscal Note Detail

Show over-all effect in Item 1 and 2 and, in Item 3, give an explanation of Breakdown by fiscal year, including long-range effect.

FISCAL YEAR			
Effect of Proposal	Current Increase/Decrease (use"-")	Next Increase/Decrease (use"-")	Fiscal Year (Upon Full Implementation)
1. Estimated Total Cost	0	0	0
Personal Services	0	0	0
Current Expenses	0	0	0
Repairs & Alterations	0	0	0
Assets	0	0	0
Other	0	0	0
2. Estimated Total Revenues	0	0	0

Rule Title: **W. Va. 126CSSR44C, Policy 2520.3 Science K-8 Content Standards and Objectives for West Virginia Schools**

Rule Title: **W. Va. 126CSSR44C, Policy 2520.3 Science K-8 Content Standards and Objectives for West Virginia Schools**

3. Explanation of above estimates (including long-range effect);
Please include any increase or decrease in fees in your estimated total revenues.

MEMORANDUM

Please identify any areas of vagueness, technical defects, reasons the proposed rule **would not** have a fiscal impact, and/or any special issues **not** captured elsewhere on this form.

No costs or revenues will be impacted by the proposed amendment of W. Va. 126CSR44C, Policy 2520.3 Science K-8 Content Standards and Objectives.

Signature of Agency Head or Authorized Representative

Date

5-20-05

126CSR44C

POLICY2520.3: 21st Century Science K-8 Content Standards and Objectives for West Virginia Schools

COMMENT PERIOD ENDS: July 13, 2009

COMMENT RESPONSE FORM

The following form is provided to assist those who choose to comment on Policy 2520.3: 21st Century Science K-8 Content Standards and Objectives for West Virginia Schools. **NOTE: Amended performance descriptors are open for comment; no other comments will be accepted.** Additional sheets may be attached, if necessary.

Name : _____ Organization: _____

Title: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Please check the box below that best describes your role.

☐ School System Superintendent	☐ School System Staff	☐ Parent/Family
☐ Principal	☐ Teacher	☐ Business/Industry
☐ Professional Support Staff	☐ Service Personnel	☐ Community Member

COMMENTS/SUGGESTIONS

§126-44C. Performance Descriptors

Please identify the performance descriptor prior to your comment.

EXAMPLE:

Grade 2, Science, Performance Descriptors SC.PD.2.1 – Add your comment.

Please direct all comments to:
Robin Anglin, Science Coordinator
Office of Instruction
West Virginia Department of Education
Capitol Building 6, Room 608
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305-0330
lmaynus@access.k12.wv.us
Fax No.: (304) 558-1834.